# Industrial Equipment News

FOUNDED 1933

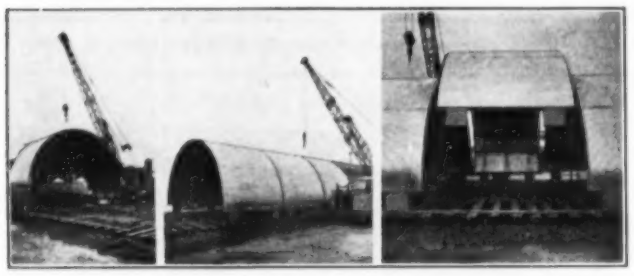
ORIGINAL REPORTER OF *What's New* IN EQUIPMENT, PARTS, MATERIALS

AFFILIATED WITH THOMAS REGISTER OF AMERICAN MANUFACTURERS


*If you write maker identify as* **IEN - 10814**

## BUILDING . . Portable structure designed to enclose outdoor storage

**Source: YARD-STOR SHELTER CO.**
**19256-60 John R St., Detroit 3, Mich.**



**$750 per section**

**Semi-circular sections** made of trussed and bridged tubing covered with corrugated metal, glass reinforced plastic, or other specified material, make up the semi-circular sections in this new portable storage equipment. Each section is shipped to the job in five panels measuring 8 by 12 feet. The panels are stacked and bound on a wood skid to form a crate 4 ft. in width, 12 ft. length and 8½ ft. in height.

**Three men** with hand tools can erect one section in an hour. Each section is supported on four wheel assemblies that ride a track measuring 24½ ft. from side to side. The completed section stands 13½ ft. in height above the rails.

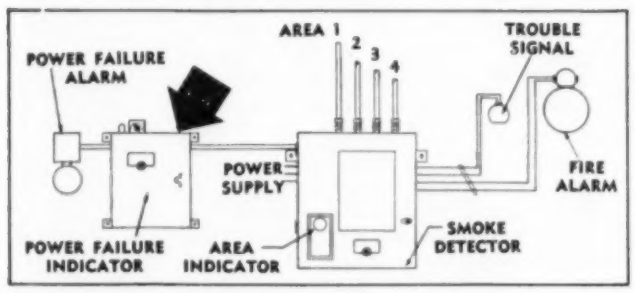
**Individual sections** can be tilted upward on either side for access to materials and equipment stored in the sheltered area. As many as six sections can be nested upon each other by means of a crane. Section weight, employing corrugated steel on the structural frame, is about 1,500 pounds. Any number of sections can be placed end to end and added to or changed as required. Insulation can be specified. Outside ends can be closed in. Skirts can be added to reach to the ground.

**The company** has prepared illustrated literature showing typical applications and explaining the construction in detail.

*If you write maker identify as* **IEN - 10815**

## SIGNALING . . Power failure alarm monitors industrial smoke detector

**Source: WALTER KIDDE & COMPANY**
**673-77 Main St., Belleville 9, N. J.**




**For new or existing installations**

**New alarm** has been developed for use with the company's multi-space smoke detector. The detecting equipment assembles at a central control point and draws air samples from as many as four protected areas. Each sample passes through a small pipe to the detection cabinet where it is scanned for smoke by a photoelectric cell.

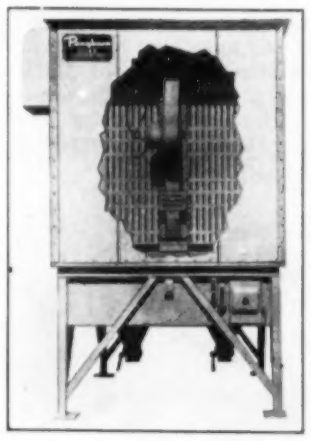
**An audible alarm** is sounded if any sample contains smoke and that particular area is identified by an indicator. The new alarm switches from the normal ac. power line, in the event that it fails, to a six-volt battery circuit. The new arrangement makes certain that the detecting equipment is in working order or that a suitable warning is sounded.

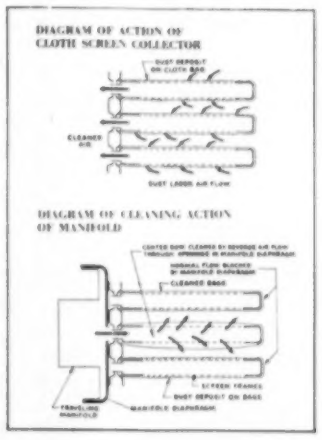
*YOUR HELP IS NEEDED*
*FOR THE COMMUNITY CHEST DRIVE*

*If you write maker identify as* **IEN - 10816**

## DUST COLLECTING . . Cloth screen unit, self-cleaning reverse flow

**Source: PANGBORN CORPORATION**
**230 Pangborn Blvd., Hagerstown, Md.**






**For continuous air flow**

**Continuous operation** is made possible in this new Type CH-3 self-cleaning cloth screen dust collector by a traveling blower equipped reverse flow manifold. It travels back and forth at one side of the screen sections. The manifold covers three of the sections at a time. It blocks off two and exposes one to the reverse air flow from the blower.

**The blower** draws from the clean air side of the collector. It forces the air through the dust-laden screen faces so the dust will drop into the collection hopper at the bottom of the housing. Thus the accumulated dust is blown from the external surfaces of the filler elements, one element at a time, and the other elements in the assembly, with the exception of the two that are temporarily blocked off, continue in active dust collecting operation.

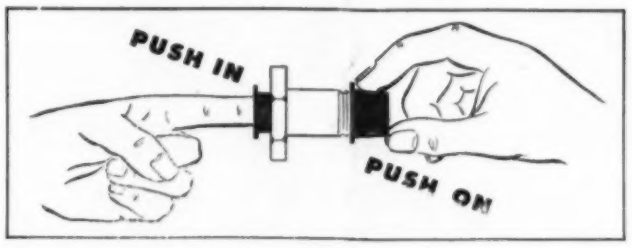
**The collector** is available in 4, 5 and 6-screen-high assemblies with section length measuring 5 feet. Existing installations of the Type-CH collector can be converted to self-cleaning design by removal of the mechanical mechanism, replacement of the grid wall and certain alterations in the screen frames and clamping devices.

**The blower motor** in the traveling manifold is interlocked with the main dust collector motor to insure simultaneous operation. A small motor, controlled by a limit switch and magnetic reversing starter, provides the travel movement.

*If you write maker identify as* **IEN - 10817**

## PROTECTING . . Plastic plugs and caps to close openings, cover ends

**Source: PROTECTIVE CLOSURES CO.**
**2205-9 Elmwood Ave., Buffalo 22, N. Y.**




**Samples and literature on request**

**Plain and threaded** units are available now in the CaPlug line of flexible polyethylene plastic plugs and caps. The plain designs, in both caps and plugs, are available from stock for any diameter from ⅛ to 1½ in. and to 3½ in. to specification.

**The new threaded plugs** are made with three or four threads just under the collar. They are stocked in 12 sizes from $\frac{5}{16}$ in. 24 thread to 2½-in. 12 thread. Color is bright red. Appearance resembles red thimbles or jar caps.


*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*



**OCTOBER, 1953**
**VOL. 21 No. 10**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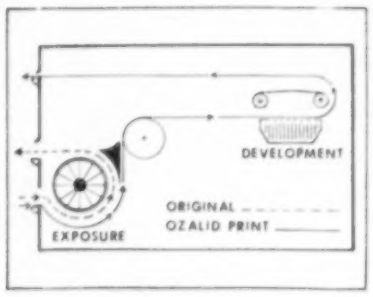
**INDUSTRIAL EQUIPMENT NEWS**
**Thomas Publishing Company**
**A. J. GRANICK, Reader Service Manager**
**461 Eighth Avenue, New York 1, N. Y.**


*If you write maker identify as* **IEN - 10818**

## PRINTING . . Belt feed machine prints and dry develops, width to 9 inches

**Source: OZALID DIVISION**
**18-22 Ansco Road, Johnson City, N. Y.**




**About $325**

**Bambino** trade names the company's new miniature printing and dry developing machine with which positive copies can be made of material written, typed, printed or drawn on translucent paper to 9 in. in width and to any length. A first copy can be made in a few seconds and as many as 200, measuring 12 in. in length, in an hour. Letter size copies cost a little under 1½ cents each including labor and materials.

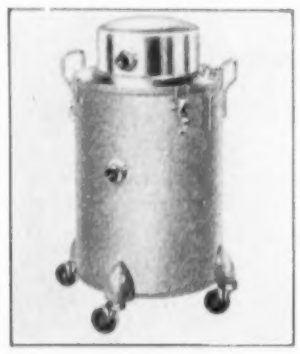
**The original** is placed on a sheet of Ozalid sensitized paper and both are fed into the machine. A belt conveys the two sheets around a mercury lamp where the ultra-violet light inactivates the dye on the sensitized paper that is not covered and protected by the opaque image of the original. The original returns to the operator.

**The sensitized sheet** is conveyed across a perforated inner enclosure through which ammonia vapor issues. This vapor develops the image and makes it as permanent as the paper itself. None of the vapor escapes the housing so no connection is required to exhaust it. The print may have blue, black, red or sepia lines, it can be on several grades or weights of white paper or on blue, pink, yellow or green paper. It also can be on film, cloth or plastic coated paper. The process remains dry from start to finish. Operation is on 110-volt ac. Dimensions are 16 by 12 by 12 inches. Weight is 60 pounds.

*If you write maker identify as* **IEN - 10819**

## CLEANING . . Portable vacuum machine for wet or dry operation, rates 1 hp.

**Source: PREMIER COMPANY**
**753-57 Woodlawn Ave., St. Paul 1, Minn.**



**Bulletin P-901**

**Vacuum,** equivalent to 58 in. of water, is produced by the motor driven blower in this new Model P-901 floor cleaning machine. The motor is universal design for operation on 110 volts. It is fitted with factory lubricated sealed ball bearings and is protected by a fuse against damage by liquid in wet operation. The machine rates 13 gal. in wet pickup, 1¼ bu. in dry pickup. Filter area, dry, is 1,060 square inches.

**Mounting** is on ball bearing swivel casters with soft rubber treads. Tank dimensions are 20½ by 35½ inches. Weight is 68 pounds. Equipment includes a rubber lined hose and adapter, steel floor rod, aluminum floor nozzle, utility tool and slide-on brush. A kit of tools for wet pickup can be specified. List price is $310.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* **IEN - 10820**

## For quickly and easily pulling bearings, bushings, and liners on electric motors

. . . use the Duff-Norton remote controlled "Lo-Hite" Hydraulic Jack with detached independent pump. The ram when closed is only 4½ inches high, yet can safely move 30 tons 2 inches in any direction. The independent pumping mechanism is connected to the jacking ram by an 8-foot flexible rubber hose. Safe, sturdy, precision-built for trouble-free service, the "Lo-Hite" is winning new users everywhere.

Write to the world's oldest and largest manufacturer of lifting jacks for Bulletin AD-3M, The Duff-Norton Mfg. Co., P. O. Box 1889, Pittsburgh 30, Pa. Canadian plant—Toronto 6, Ontario.

**DUFF-NORTON JACKS**

*"Giving Industry a Lift Since 1883"*


*If you write maker identify as* **IEN - 10821**

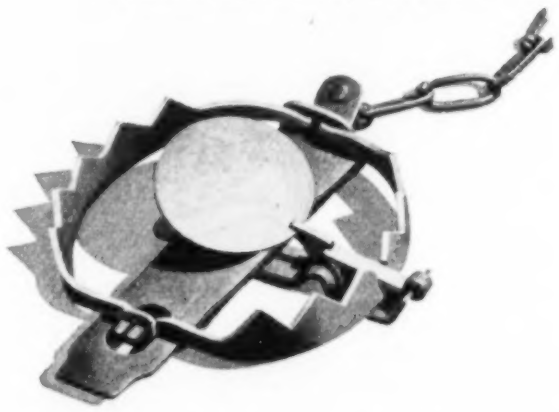
## Revolution in Accuracy

The versatile Hiller Helicopter demands bearings that carry *all* loads . . . that *stay* rigidly accurate. New Departure meets that demand with bearings for the Hiller's main transmission and tail rotor gearbox. In fact, New Departures meet the demands of *any* design that calls for low-friction, high-precision support of moving parts.

Send for free Booklet A18

NEW DEPARTURE
BALL BEARINGS


*If you write maker identify as* **IEN - 10822**




All over your building, fire sets its traps. In dip tanks, transformer vaults, storage spaces. In fact, wherever it can stop your business in its tracks. Make sure you don't fall victim Post a KIDDE Portable Extinguisher next to every fire hazard.

**Kidde**

**Walter Kidde & Company**
**1036 Main Street**
**Belleville 9, N. J.**


*If you write maker identify as* **IEN - 10823**


## GET ANY BRAZING OUTPUT YOU WANT WITH EASY-FLO SILVER BRAZING ALLOYS

It's easy. Here's the formula.

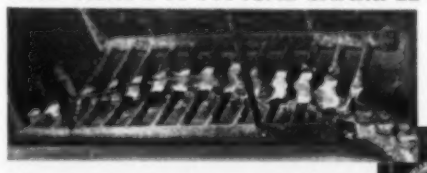
1. Assemble parts for brazing with alloy *preplaced* at the joints.
2. Use a fast heating method such as oxyacetylene torch, gas-air burners, electrical induction furnace, etc.
3. Plan a set-up that will keep assemblies moving to and through the heating station.

Above—Brass valve and cap of fire extinguisher with 9/16" square of .005" EASY-FLO 35 that joins them.

At left — close-up of burner station.

Below — turntable and gas-air burner brazing set-up.

**AND HERE'S A TYPICAL EXAMPLE**



One operator puts caps on turntable and alloy squares on caps. Other operator applies Handy Flux and sets valves on top of alloy. Output—one every 5 seconds—720 per hour. Unskilled labor does it.

Photos courtesy of Salkover Metal Processing of New York, Inc.

**GET THE FULL STORY IN BULLETIN 20**

It gives details about EASY-FLO forms for preplacement and fast heating and production methods. It's full of helpful information. Write for a copy.

**HANDY & HARMAN** 82 Fulton St., New York 38, N. Y.

Distributors in Principal Cities. In Canada: Handy & Harman of Canada Ltd., Toronto

If you write maker identify as IEN - 10824

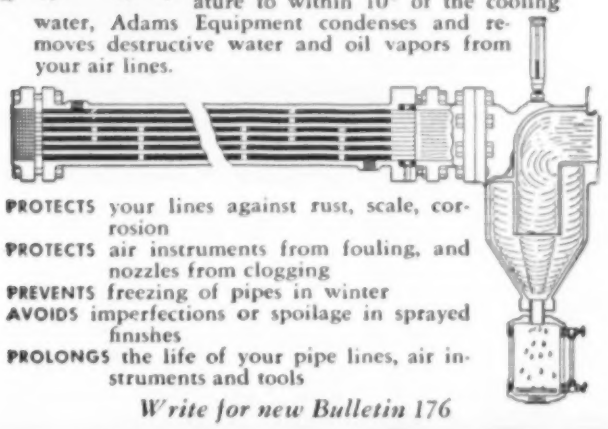
## You Can be Sure of Clean Dry Air for your Compressed Air Tools

3500 Gallons

1 YEAR'S water extraction from air lines equipped with Adams Aftercooler and Cyclone Separator.

with **ADAMS** Aftercooler and Cyclone Separator

● Reducing compressed air temperature to within 10° of the cooling water, Adams Equipment condenses and removes destructive water and oil vapors from your air lines.



**PROTECTS** your lines against rust, scale, corrosion
**PROTECTS** air instruments from fouling, and nozzles from clogging
**PREVENTS** freezing of pipes in winter
**AVOIDS** imperfections or spoilage in sprayed finishes
**PROLONGS** the life of your pipe lines, air instruments and tools

*Write for new Bulletin 176*

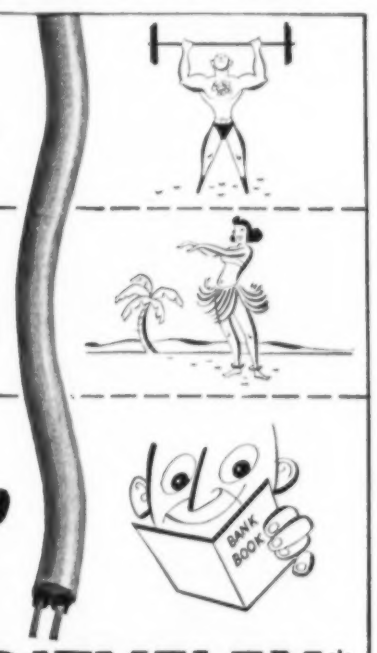
**R.P. ADAMS CO., INC.** 219 E. PARK DRIVE BUFFALO 17, N. Y.

If you write maker identify as IEN - 10825

it's **STRONG**

it's **FLEXIBLE**

and it **SAVES YOU** money

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PORTABLE CORD

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the right cable for the job

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*Trademark 52427

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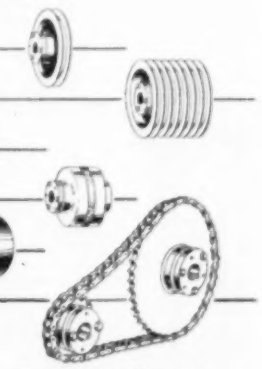
## Mr. Maintenance Man...

HERE IS YOUR ANSWER TO COMPLETE PLANT STANDARDIZATION OF POWER TRANSMISSION EQUIPMENT

**BROWNING** has added a complete line of Roller Chain Sprockets with Malleable Split Taper Compression Bushings.

*NOW you have the same simplified bushing system for...*

SINGLE GROOVE SHEAVES
MULTIPLE GROOVE SHEAVES
RIGID COUPLINGS
FLEXIBLE COUPLINGS
PAPER PULLEYS
and now ROLLER CHAIN SPROCKETS



JUST THINK... One Simplified Bushing System throughout your entire plant

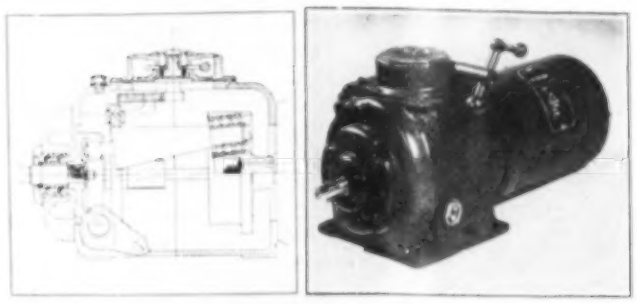
Only your Browning Distributor offers this service...there is one near you. Write for Catalog GC101.

**BROWNING** MANUFACTURING COMPANY MAYSVILLE · · · KENTUCKY

If you write maker identify as IEN - 10827

## DRIVE . . Variable speed unit, one way and reversing, 1/6 to 1/4 hp.

Source: GRAHAM TRANSMISSIONS INC.
553 Graham Ave., Menomonee Falls, Wis.



Dial on housing is standard control

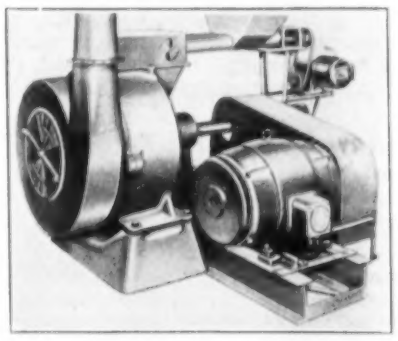
**Model 28** is a new assembly of the company's stepless variable speed drive in which a ring is adjusted axially on a cone to change the ratio between input and output speed. The new unit mounts the cone to slope downward from the input end instead of upward as in the previous design. The new arrangement increases the effective cone dimensions. Maximum speed is specified by the user and supplied by assembling a built-in speed reducer or a step-up gearbox on the output end.

**Various designs** include single and double reduction helical spur gear reducers, right-angle worm gear units with the output shaft horizontal or vertical. The input end can be fitted with a specified motor, including explosion proof. Control can be manual or by power, locally or at any remote point.

If you write maker identify as IEN - 10828

## PULVERIZING . . Impact machine with air classifying for process use

Source: SCHUTZ-O'NEILL COMPANY
317-21 Portland Ave., Minneapolis 15, Minn.



50 to 5,000 lb. per hour

**Fibrous, brittle** and oily materials can be handled by this new Superfine impact pulverizing machine. Albumin, beet sugar, cocoa, dyestuffs, tobacco stems, fungicides, fibrous talc, spices, grain are examples. The machine can be set to produce particle size in an overall range from 20 mesh to 5 microns. Lowest intermediate range is 20 to 80 mesh. Two higher intermediate ranges are 80 to 200 and 200 to 400 mesh.

**The machine** returns material, that will not pass through the built-in classifier, so it can be reground to suitable size. Provision is made also to remove the oversize material as a byproduct. Air control makes it possible to operate without heating beyond 135 deg. F. The machine can be taken apart for cleaning and adjustment in about 10 minutes.

**Five sizes** are 16 to 28 inches. Input ranges from 10 to 100 hp. Operating speed is 4,800 rpm. for the smallest machine, 3,000 rpm. for the largest. Floor space, without the receiver equipment, is 22 by 48 in. to 40 by 72 inches.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10829

SAFETY EQUIPMENT FOR ALL INDUSTRIES

QUICKLY APPLIED OR REMOVED
●
GUARANTEED AGAINST BREAKAGE

## IPCO M and M RAIL CLAMPS

For car stops, on loading platforms, temporary sidings, cars on grades, and traveling cranes . . . Used and recommended by leading Steel Companies, Manufacturing Plants, Mines, Grain Elevators, Cement Plants and Quarries.

WRITE FOR BULLETIN NO. 44

IPCO *Safety Equipment for all Industries*

**INDUSTRIAL PRODUCTS COMPANY**

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If you write maker identify as IEN - 10830

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**3. LUBRIPLATE is economical to use**

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PUSH BUTTON **CASTELL LOCKTITE HOLDER** AND **CASTELL** IMPORTED LEAD

- One-hand clutch operation avoids touching lead, smearing fingers or drawing.
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- Clean, balanced, efficient for every type of drawing, sketching, rendering, coloring.

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the drawing pencil with the Master Degrees

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803 Articles
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154 varied applications of molybdenum sulfide in the shop and in the field are described in a new booklet now available. This solid-film lubricant has demonstrated unique anti-friction properties under conditions of extreme pressure, high velocity, elevated temperature, or chemical attack.

The 40-page booklet contains the records of solved lubrication problems—some might solve your own.

**Moly-sulfide**
A LITTLE DOES A LOT

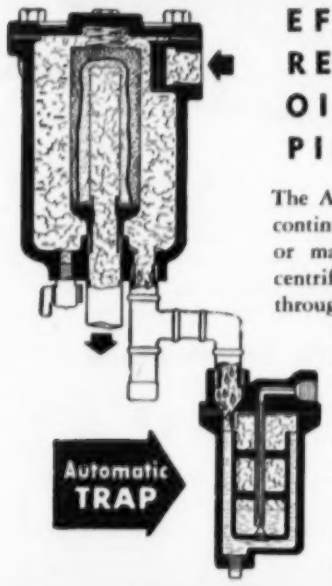
*The lubricant for extreme conditions*

MS-6A

**Climax Molybdenum Company**
500 Fifth Avenue, New York City 36, N.Y.

If you write maker identify as IEN - 10834

# Poro-Stone Filtration FOR COMPRESSED AIR

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The Adams *Poro-Stone* Filter gives continuous service without attention or maintenance expense. Efficient centrifugal separation *plus* diffusion through Poro-Stone, removes contamination completely without pressure loss. Automatic Trap eliminates attention and assures continuous and efficient filter operation.

*Write for complete data Bulletin 176*

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**ADAMS** *Poro-Stone* AIR FILTER

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CRANE 18-8 Mo Alloy Trimmed Alloy Cast Iron Gate Valves

NOW AVAILABLE IN SIZES 2 TO 18 IN.

Here's the Crane valve that economically solves the problem of seating surface corrosion in many a process. All seating surfaces . . . and the stem . . . are corrosion resistant 18-8 Mo alloy. Valve body and disc are alloy cast iron.

And it's a strong and sturdy valve with liberal metal sections for maximum strength . . . and tie ribs at flanges for extra resistance to line strains. Straight-through ports minimize turbulence. Complete specifications in your Crane Catalog, or consult your Crane Representative.

WORKING PRESSURES
200 Pounds cold water, oil, or gas, non-shock.

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**Industrial Equipment News**

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THIS ISSUE 69,000 COPIES

*Printed by Charles Francis Press, New York*

Industrial Equipment News acts solely in a news reporting capacity for data supplied to it on new industrial developments.

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461 Eighth Ave., New York 1, N. Y.

CCA SBME NBP

VOL. 21 OCTOBER, 1953 No. 10

## *Little Input—Big Output*

There you have an oversimplified definition of the function of an amplifier. Probably most of you recognize it. Actually all of you are acting as amplifiers whenever you make a move of any kind. Dr. R. A. Ramey, manager of the magnetic materials development department, pointed this out when he was introduced to a group of editors by H. C. MacDaniel, Westinghouse manager of technical publicity, to talk about the Magamp magnetic amplifier. His talk gave us a new view of the overall subject of automatic control. We quote from Dr. Ramey's remarks—

"Each of you is a complex amplifier controlled system. As an amplifier, you respond to signal levels of infinitely low power. You deliver useful output to one manpower. Your operation can be observed for its input signal, output power and response time.

"Assume you are controlling a machine tool and that a particular cut is to be made. You set a tool positioning dial with considerable accuracy. Your input signal is the difference between the desired setting and the position of the index pointer. A small quantity of light is all that is required to indicate to you the magnitude of displacement from the desired position. This minute amount of power motivates your actions so you will turn appropriate cranks to bring the dial to the correct setting. You are acting as an amplifier with tremendous gain in this operation. Your response time, or speed of operation, is the time you require to make the setting. The working conditions about you determine your environmental resistance.

"If you are to be replaced with a machine, it must accomplish the same results and be motivated from the same information. To increase production, it must accomplish the result in a shorter time at a reduced cost. It may be essential that it operate satisfactorily under all types of environmental conditions such as rain, sunshine, freezing or excessively high temperature.

"You, as an amplifier, have certain definite advantages. Your sensitivity to error is great. A small amount of power will motivate you. Your gain is high. You have the characteristic of non-treacherous failure which means you seldom stop functioning abruptly. You slow down instead and so indicate approaching difficulty. You also possess intelligence, a factor that is very difficult to reproduce.

"You also have certain disadvantages. Your power output, one manpower maximum, is low for your size and weight. Your response speed, about one-half second, is low also. You cannot respond effectively to a signal faster than one cycle per second. You are expensive to operate and maintain and your environmental resistance is relatively poor. As of now, the magnetic amplifier is the best replacement for you as an equipment operator."

All of which leads us to the conclusion that it might be good business to get the real lowdown on these magnetic amplifiers and their related equipment. Then we can use our one factor that they do not possess, intelligence, and become the owners or directors and operators of a thousand or more of these new "things to do things with."

W. E. Irish.

If you write maker identify as IEN - 10836

# 20 "SEE THRU" DRAWERS!

60 LENGTHWISE OR CROSSWISE compartments

LOWEST COST HANDIEST STORAGE
Useful in every shop, lab, home office, etc. In radio, TV or ignition work. KEEPS SMALL THINGS HANDY.

$7.95 Model J-

No other cabinet can compare in price, construction strength! Many desirable features! "SEE-THRU" durable Plastic Drawers can't spill accidentally. Strong welded steel cabinets. Drawers divide into 2 or 3 compartments, LENGTHWISE or CROSSWISE. Sent complete with index cards, drawer dividers, rubber feet.

10 DAY FREE TRIAL! Return after 10 days if not completely satisfied.

HAZ-BIN JR. DRAWER SIZE SAME IN ALL MODELS
2¾"W x 1 7/16"D x 5⅛"L

All models 6" deep. J-8 thru J-48 12½" Wide, J-64 thru J-128, 25⅛ Wide.

HAZ-BIN, JR. STORAGE UNITS

| Model No. | No. of Drawers. | Height. | Lbs. Wt. | Net Price. |
|---|---|---|---|---|
| J-128 | 128 | 30½" | 50 | $55.95 |
| J- 96 | 96 | 22½" | 40 | 42.95 |
| J- 64 | 64 | 15¼" | 25 | 24.95 |
| J- 48 | 48 | 22½" | 19 | 20.95 |
| J- 32 | 32 | 15¼" | 13 | 12.95 |
| J- 24 | 24 | 12¼" | 10 | 9.95 |
| J- 20 | 20 | 10¼" | 9 | 7.95 |
| J- 16 | 16 | 8¼" | 8 | 6.95 |

Mfg. by Akro-Mils, Inc
P. O. Box 989N,
Akron 9, Ohio.

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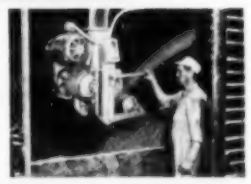
Saves time, money and labor. Powerful centrifugal thrower loads dry granular material up to 2" size into far corners of box cars. *Operator stays safely outside car.* May also be used for storage bins or piles. *Mail coupon for Bulletin 1046.*



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Standard Products Division
231 Ridgeway Ave., Aurora, Ill.

Please send me Bulletin 1046 on S-A SWIVEL-LOADERS.

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Company.....
Address.....
City.....Zone....State.....

If you write maker identify as IEN - 10838

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German made by one of Europe's leading specialists in precision tools. Measures inside-outside & depth in .001" to 6" in 1000ths and 1/10mm to 150mm in 10ths. ....9.75
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Handy stand magnifier with universal adjustments. Overall height: 6". Has powerful, clear magnifying lens. 1.49

BENDIX HYDRAULIC PUMP & MOTOR
Has 3-1/2 GPM capacity at 600 PSI. Motor is 1½ HP, 24V, D.C. Will operate on either 12 or 32V, DC current. Has built-in relief valve adj. to 1500 PSI. This unit ideal for hyd. lifts, portable loaders, etc. ....19.50

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Operating pressure 2000 PSI. Cap., 1.5 cu. in per complete cycle ...12.75

GEAR HEAD MOTORS
Heavy duty, G.E. Gear Head motor. 2 HP, 24V. DC, 125 amp., reversible motor drives a reduction gear unit giving 36 to 1 ratio of take-off. Also will operate on 6 or 12 volts.
36 to 1 G.E. (306 shaft RPM)
20 to 1 Eclipse (130 shaft RPM)
40 to 1 Eclipse (110 shaft RPM) 10.95 EA.

HYDRAULIC ACCUMULATORS
A-28 FLOATING PISTON TYPE – 4"x 18" Built to stand 2,000 PSI 12.75
A-5 VICKERS – 10" dia. Ball type. Built to stand 2000 P.S.I. 24.75

ELECTRIC ACTUATORS
Hundreds of uses for any mechanical device needing controlled 2 way action. Opens, closes, raises or lowers doors – windows – gates – valves. CTU-2 – Peete Linear Actuator – 24 volt, DC, 8500 RPM, 1/6 HP – series wound motor. 4½" stroke in 13½ sec. Compression and tension loads up to 750 lbs. Adjustable micro switch for limits of travel. Overall lngth., retracted 11" 7.95
We also carry many more sizes and types of Actuators. Write today for information.

HYDRAULIC CYLINDERS
Gives 20,000 lb. thrust (push or pull) using 1500 PSI line pressure as obtained from our hydraulic pumps. Will produce up to 40,000 lb. thrust with 3000 PSI. Can also be used on low pressure air systems. 4" bore; 18" stroke; 30½" length. Ideal for road home – shop machinery. 29.95

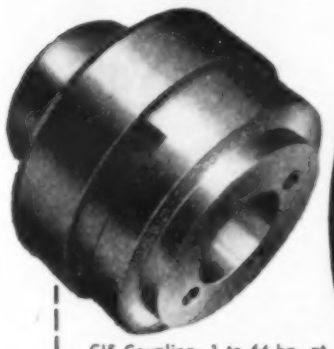
230 Pg. CATALOG
Amazing Values! 1000's of items for Mfgr., Mechanic, Sportsman, etc. Save on Machine Tools, Hydraulics, Pumps, Valves, Hand & Power Tools, Instruments, etc. Send for your copy today!

No. 3 HYDRAULIC CYLINDER
Double action. Bore is 1" – Shaft ½". Has stroke of 2½" to 4". Stroke can be adjusted with internal sleeve stops. Overall length is 8½". Will take 1500 lbs. continuous duty. 3000 lbs. intermittent. Will lift or push up to 1100 lbs. 5.75
We stock over 50,000 Hydraulic Cylinders, Valves, Pumps, Accumulators, Hand Pumps, Motors, Hose, etc. All at Money Saving Prices.

PALLEY SUPPLY CO.
2263 E. VERNON AVE.
IN-10
LOS ANGELES 58, CALIF.

Order from this ad. Pay by M.O. or check. If C.O.D. is right from D&B firms, ½ deposit with C.O.D.'s.
All Prices F.O.B. Los Angeles

If you write maker identify as IEN - 10839



**new... LOVEJOY CIF COUPLING**

CIF Coupling: 1 to 64 hp. at 100 rpm . . . max. bore 1⅝ to 5⅞.

★**COMPACT — fits right into the flywheel . . . saves space required by conventional hub length**

★**ECONOMICAL—elimination of one flange affords cost saving over standard flywheel couplings**

★**MAINTENANCE FREE—cushions changed without shutdown . . . no lubrication required**

**LOVEJOY Flexible Couplings provide maximum alignment correction, extra-smooth power transmission . . . absorb vibration, starting torque and shock of intermittent loads . . . assure optimum motor and machine performance. Cushions are made of materials best suited to load conditions.**

**There's a LOVEJOY Flexible Coupling for every requirement.**

*Write today for Catalog and Handy Selector Charts*

**LOVEJOY FLEXIBLE COUPLING CO.**

**5014 WEST LAKE STREET CHICAGO 44, ILLINOIS**

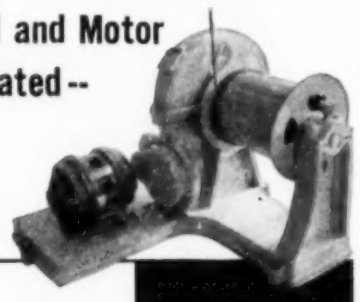
Mfrs. of Flexible Couplings, Universal Joints, Variable Speed Transmissions, and Variable Speed Pulleys.

If you write maker identify as IEN - 10840

**S-A Winches**

**Hand and Motor Operated--**

**Capacities 500-3000 Lbs.**



Lifting and pulling can be done faster, more safely, with S-A Winches. They quickly pay for themselves in manhours saved. Available for floor or wall mounting. Reversible motors aid in hoisting. Most models can also be used as a capstan for car pulling. Unusually compact.

**Gives One Man the "Muscles" to Lift-Pull Heavy Loads**

**MAIL COUPON for BULLETIN**

**STEPHENS-ADAMSON MFG. CO.**
**Standard Products Division**
**231 Ridgeway Avenue, Aurora, Ill.**

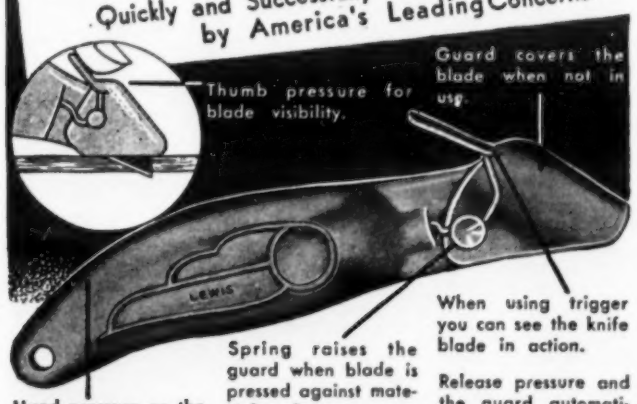
Please send Bulletin 853 on S-A Hand and Motor Winches.

Name.....
Company.....
Street.....
City.....Zone...State.....

If you write maker identify as IEN - 10841

**NEW! LEWIS AUTOMATIC TRIGGER ACTION SAFETY KNIFE**

Quickly and Successfully Adopted for Use by America's Leading Concerns




No other cutting tool like it. Eliminates the hazards of exposed cutting blades. You must operate it to appreciate its swift and sharp cutting . . . always automatically ready for use. Trigger action gives full blade visibility with safety.

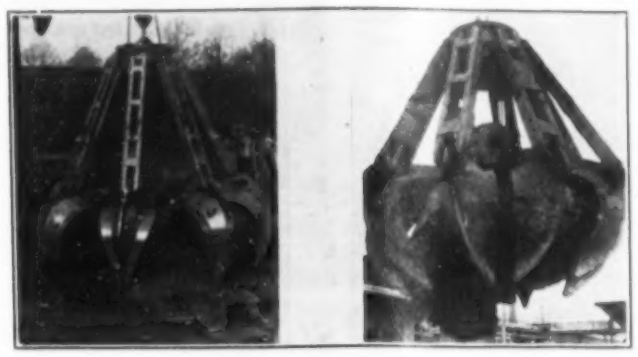
**Retail Price $1.50**

**FLASH BOX OPENER CO., Inc.**
**52 W. Houston St. • New York 12, N. Y.**

If you write maker identify as IEN - 10842

## HANDLING . . Orange peel grapple gathers, lifts scrap, bulk materials

**Source: RUHR INDUSTRIES**
**1409-13 Walnut St., Philadelphia 2, Pa.**



**Made in Germany**

**Six or eight curved** fingers are pivoted around the base of a lower movable sheave block. They are suspended by slotted individual arms that pivot in the upper head carrying a stationary sheave block in this new Scheidt grapple. The fingers swing open so their points face downward when the closing effort is relaxed. They close downward and inward to gather a load, in definite digging action, when pull is applied on the closing lines to lift the movable sheave block. Individual fingers adjust themselves to load irregularities.

**Construction** is in steel with the finger edges hard faced against wear. The grapple can be converted into an orange peel bucket by applying available shaped plates on the fingers. Twelve sizes in the line rate 0.4 to 3.3 cubic yards. The grapple will handle scrap, ore, logs, large and small rock.

If you write maker identify as IEN - 10843

## HOIST . . Electric chain design, to 2 ton, operates on 12 volt battery

**Source: MANNING MAXWELL & MOORE CO.**
**408 Broadway, Muskegon, Mich.**

**Bulletin 404**

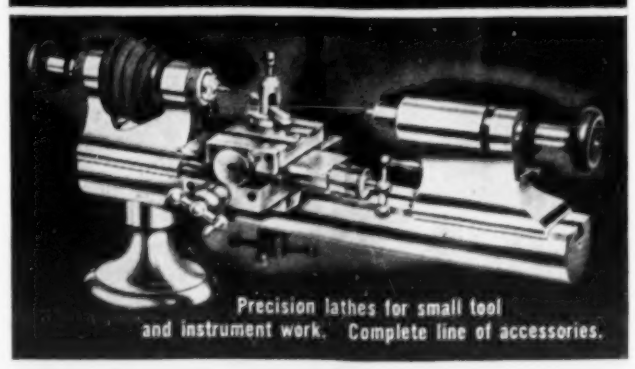
**Motor vehicle** trucks equipped with a 12-volt battery can employ this new Budgit hoist by connecting it to the battery terminals. Trucks with a 6-volt battery can use the hoist after adding a second 6-volt battery to bring the voltage up. The hoist mounts on several designs of structure on a truck bed, including the swivel mast shown in the illustration. Drain on the battery is low enough so the truck engine can keep it charged in normal operation.

**Three sizes** rate ½, 1 and 2 ton. Lift speeds are 17, 9 and 4½ fpm. with a rated load. Gearing is in a sealed housing to operate in oil. Construction includes a shoe type motor brake adjustable from the outside and a Weston roller ratchet load brake. Either one will hold the load. The motor is controlled by a reversing drum unit with spring return to "off" position. The load hook and lower block are forged steel. Standard lift is 10 feet. List price is $269 to $349.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10844

**LEVIN** ® Jewelers type lathes for fine instrument work and second operations. Collets as small as .004". Send for catalog. Louis Levin & Son, Inc., 782 E. Pico Blvd., Los Angeles 21.




If you write maker identify as IEN - 10845

**Your LOW COST SOLUTION to PROCESS HEAT problems**

Save time and money with economical, easy-to-install **CHROMALOX** *Electric* **UNITS**

Only Chromalox gives you a full selection of electric heaters to meet every need. Over 15,000 types, sizes and ratings to choose from, most available from stock—for heating gases, liquids, platens, dies, molds, ovens, soft metals and countless other materials. Chromalox Heaters are easily and inexpensively installed, provide concentrated, controlled heat that is dependable, economical, safe, clean and efficient.

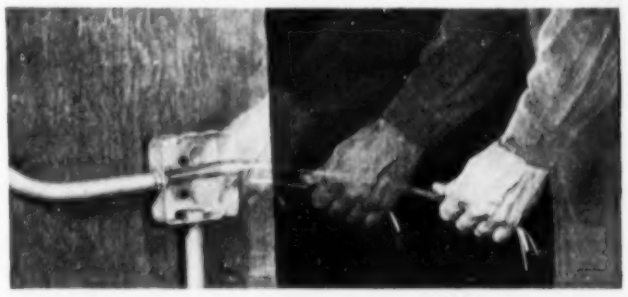
**Industrial Div., EDWIN L. WIEGAND CO., 7505 Thomas Blvd., Pittsburgh 8, Pa.**

*See Chromalox Tubular Heaters Advertisement, Page 11*

**CHROMALOX**

***ELECTRIC HEAT FOR MODERN INDUSTRY***

If you write maker identify as IEN - 10846



## *Easy wire-pulling*

### with New G-E WHITE rigid conduit

New G-E WHITE rigid steel conduit features easy wire-pulling, easy bending, and improved corrosion protection. This new conduit is lined with a protective coating containing an anti-friction agent that speeds wire-pulling. The exterior is protected by the "metallizing" process, which bonds a controlled, uniform coating of pure zinc to the conduit, threads and all, without hardening it. Try new G-E WHITE conduit on your next job. Section C30-1042, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

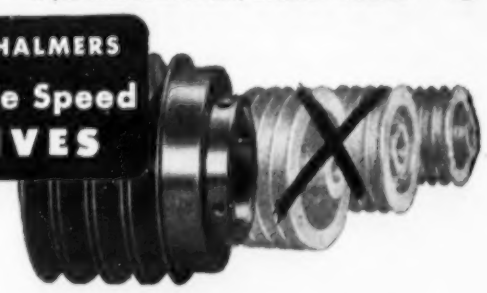
**New G-E WHITE**

*You can put your confidence in—*

**GENERAL ELECTRIC**

If you write maker identify as IEN - 10847

**ALLIS-CHALMERS Variable Speed DRIVES**



## LET ONE SHEAVE DO THE JOB OF 2 or 3!

WHY DISMANTLE DRIVES AND CHANGE SHEAVES every time you want to change speeds? Get the speed you need with one *Vari-Pitch* sheave. It has a number of important advantages:

- **Provides infinite number of speeds.**
- **Speed will not change once it is set.**
- **Costs less than other methods of speed changing.**

Allis-Chalmers offers all the equipment and engineering needed for the complete *Texrope* drive, including sheaves, belts, motors, starters, and motor bases—all from one reliable source, backed by nation-wide service.

Call your nearby Allis-Chalmers district office or distributor, or write Allis-Chalmers, Milwaukee 1, Wisconsin. A-4116

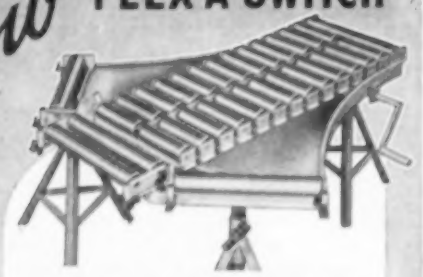
*Texrope and Vari-Pitch are Allis-Chalmers trademarks.*

**ALLIS-CHALMERS**

If you write maker identify as IEN - 10848

# 3 WAY Flow "FLEX-A-SWITCH"

LEFT and RIGHT and THROUGH



ROLLERS are concentric at any setting to assure positive line of travel without guard rails. Can be used with curves and straight sections to distribute work in production or warehouse handling. Standard 11½"; 15"; 18" conveyor widths.

2 WAY Flow

Remote or manual control. Remote control illustrated at left.

WRITE FOR DETAILS

- LEFT & THROUGH
- RIGHT & THROUGH

**METZGAR CO.**

MFGRS. OF WHEEL & ROLLER GRAVITY & LIVE ROLLER CONVEYORS • POWER BELT CONVEYORS • SWITCHES • ACCESSORIES & REEL DOLLIES

417 Douglas, N. W.

GRAND RAPIDS 4, MICH.

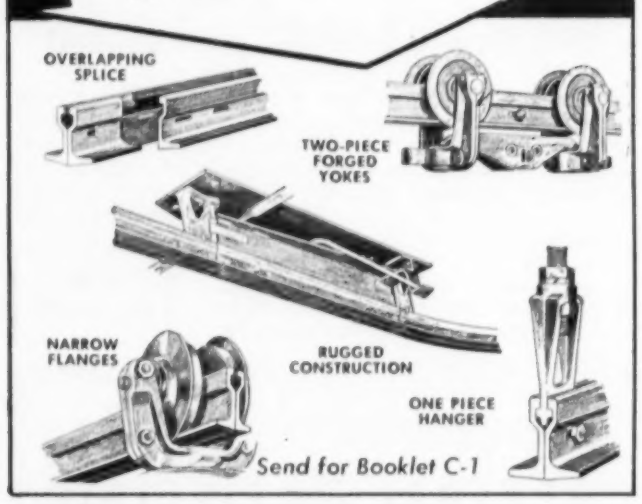
If you write maker identify as IEN - 10849

# MONORAIL SYSTEMS FABRICATED TO FIT

American MonoRail is fabricated to fit any handling job. Systems are available for hand or electric operation, including rubber wheel drive with local or remote control providing many automatic features.

**AMERICAN MONORAIL CO.**

13111 Athens Avenue • Cleveland 7, Ohio




Send for Booklet C-1

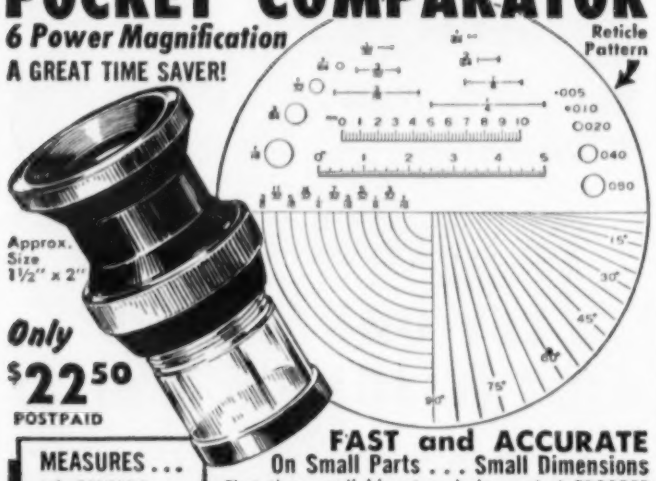
If you write maker identify as IEN - 10850

CHECK, MEASURE, INSPECT with this HANDY

# POCKET COMPARATOR

*6 Power Magnification*

A GREAT TIME SAVER!




*Only* $22.50 POSTPAID

**MEASURES . . .**
- ANGLES
- RADII
- CIRCLES
- LINEAR DIMENSIONS in both decimal inches and millimeters

**FAST and ACCURATE**
**On Small Parts . . . Small Dimensions**

First time available at such low price! EDSCORP POCKET COMPARATOR. Fine, imported measuring magnifier—for fast, accurate inspection of intricate parts. Used to check layouts, machining on tools, dies, gauges — to check threads, chamfers, small holes. In optical work for checking flaws such as bubbles, seeds, scratches, pits and digs. For scientists — in determining width of spectograph lines. In photography—measuring and focusing at ground glass. Instrument comes in protective leather case. Money back guarantee.

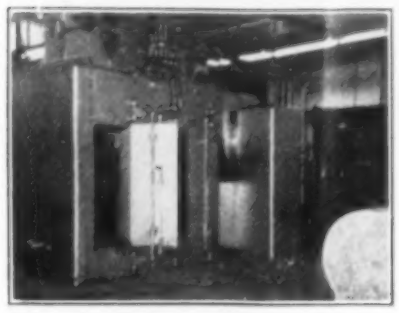
**WE'LL SHIP ON 10-DAY TRIAL OFFER** *Attach Coupon to Company Letterhead*

Edmund Scientific Corp., 309 E. Gloucester Pike, Barrington, N. J.
*Please ship EDSCORP Pocket Comparator Stock No. 30,061-AS on 10-day Trial Offer*
☐ Check is enclosed in amount $22.50. ☐ Bill on open account.
Name .....
Company .....
Address .....
City ..... Zone ..... State .....

If you write maker identify as IEN - 10851

## HEAT TREATING . . Gas fired furnace, recirculates heat and flattens the work

Source: WALTZ FURNACE CO.
1903 Symmes St., Dept. 6, Cincinnati 6, Ohio



Built to order

**Illustrated** is a special assembly of gas fired recirculating furnace in which 10 work openings are located between hydraulically operated dies to take flat work pieces. When the work is in position, pressure is applied and the work is held flat while it is being tempered.

**The furnace** is equipped with three sections of pressure dies and three doors, one for each section. Valves, to open and close the dies, are located above the center door. The pressure cylinders are on top.

If you write maker identify as IEN - 10852

## SEALING . . Plastic fabricating adheres teflon to itself and to metals

Source: GRAEF ENGINEERING CO.
Box 416-A, Clearwater Station, Paramount, Calif.

Technical data upon request

**The company** announces development of a process and installation of facilities with which it is prepared, on a contract basis, to seal teflon to itself or to metal surfaces. Teflon tapes, currently available in width from 6½ to 12 in., can be fabricated to any desired width. It also can be applied to bags, sacks, fuel cells, tank liners, protective clothing, laboratory dishes, where its chemically inert characteristics are required.

**The teflon** tape can be bonded to metal surfaces for chemical resistance and non-adhering qualities of the plastic backed by the strength and rigidity of the metal.

If you write maker identify as IEN - 10853

## ELECTRIC CIRCUITS . . Wire harness assembled and shaped for specified use

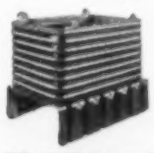
Source: CHERRY-CHANNER CORPORATION
1486 Skokie Blvd., Highland Park, Ill.

Ready to install

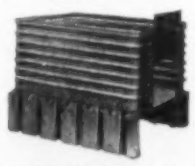
**The company** announces installation of facilities through which it is prepared to assemble complete wiring harnesses with terminals, shielded leads, jacks, plugs, ready for installation in specified electric and electronic equipment. The work is done on a contract basis, following initial assembly, to specification or to samples supplied by the user.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10854



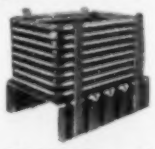
Type PB-120T box and platform with tiering lugs.



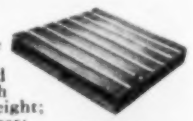
Type PB-650 box and platform units with sliding end door.

Now...Specify *Republic* STEEL BOXES & SKIDS

Same "Truscon-type" steel boxes and skids you've always known and used. Now, they have a new name: "REPUBLIC". Same ability to carry the load and keep things moving. Same ability to produce savings for you in all phases of materials movement. Backed by the same experience, engineering ability, and efficient production experience. Fully described in free illustrated catalog.



Type PB-120L box and platform units with full length lifting lugs.



Double-Face Steel Pallets —rigidity and strength with minimum weight; no sharp edges; three styles.

REPUBLIC STEEL

PRESSED STEEL DIVISION
REPUBLIC STEEL CORPORATION
6200 TRUSCON AVE. • CLEVELAND 27, OHIO

If you write maker identify as IEN - 10855

# For 30 Years—EXPERTS AT STAMPINGS IN SMALL LOTS SHORT RUNS

**DAYTON ROGERS** *Manufacturing Company*

New York City, Chicago, St. Louis, Denver, Cleveland, Baltimore, Pittsburgh, Milwaukee, San Francisco, Indianapolis, Detroit, Dayton, Ohio, Rochester, N. Y., Grand Rapids, Mich., Newton, Mass.

MINNEAPOLIS 7, MINN.

If you write maker identify as IEN - 10856

# *Lightweight* HELIARC TORCH *is water-cooled...*

FOR EFFICIENT INERT GAS WELDING AT LOW COST

You can make high quality welds every time with this lightweight, 300 amp. HELIARC HW-10 torch. Both the torch body and power cable have all-internal water-cooling for cooler operation even when welding continuously at full capacity. Yet cleaning is easy for all water passages are straight. Electrode adjustment is quick and simple, too. No wrenches needed. And electrode stub loss is minimized by an improved water-cooling system. Call your nearest LINDE representative today for more details on the HELIARC HW-10 torch.

**LINDE AIR PRODUCTS COMPANY**
A DIVISION OF UNION CARBIDE AND CARBON CORPORATION
30 East 42nd Street UCC New York 17, N. Y.
Offices in Other Principal Cities
In Canada: DOMINION OXYGEN COMPANY, LIMITED, Toronto

The terms "Heliarc" and "Linde" are registered trade-marks of Union Carbide and Carbon Corporation.

If you write maker identify as IEN - 10857

# NEW! FAST! EASY!

## *PRINT FACSIMILE LABELS DIRECT TO CONTAINERS*

Here's the new system that eliminates labels and the old stencil board—ink brush method of addressing and marking shipping containers. With the new Web-O-Print JC-3 hand printer and a Kustom-Kut (die-cut) stencil, you can print both facsimile label and shipping information direct to cartons or boxes *in one operation* . . . at the rate of 40 to 50 cases per minute!

Kustom-Kut stencils are pre-cut to print your label or form. Address and other variable information are typed in . . . stencil is quickly attached to Web-O-Print . . . label and address are then printed on container in a single movement.

Web-O-Printing is a fast, clean one-hand operation. Prints on rough and cylindrical surfaces. Leaves a sharp, compact, fade-proof and waterproof print. Can be easily blocked out for re-shipping.

**FREE SAMPLE PRINT** Write today for a sample print and information on trial offer. No obligation.

**Weber** LABEL AND MARKING SYSTEMS
*Division of* Weber Addressing Machine Co.
Dept. IE-3, Mount Prospect, Ill.

If you write maker identify as IEN - 10858

# TAL PORTABLE BENDERS

## Complete ALL Piping Jobs FASTER

**SAVE ON**

- Number of Fittings
- Elbows & Couplings
- Cutting, Threading
- Overall Costs

Install pipe and conduit *faster* at *lower cost* by reducing up to 80% the number of fittings or elbows and couplings otherwise needed. Save on cutting and threading. You can with a Tal, because Tal Portable Benders make any degree bend up to 180° in A *SINGLE* OPERATION WITHOUT SHIFTING THE PIPE.

No guesswork for offsets, long sweeps or any other bends. No experience necessary to make accurate, wrinkle-free bends right on the job. *No spoilage.* Bend indicator assures identical repeat bends without measuring. Learn today how you can earn more money and handle more jobs with a Tal Bender.

**COMPLETE LINE OF BENDERS**
For pipe up to *8 inch.*
For copper and thinwall tubing.
6-Way Hickeys — lifetime guarantee.

WRITE FOR THIS FREE BULLETIN

**Tal Bender, Inc.** Dept. 2 Milwaukee 2, Wis.

If you write maker identify as IEN - 10859

# CHAMPION E-X-P-A-N-D-I-N-G MANDRELS

**give speed to every set-up**

The flexible sleeve, mounted on tapered arbor, expands automatically to fit the hole. Inserted by hand — no arbor press needed. Always an exact, positive, concentric fit. Locked by a single mallet blow. Unlocked the same way. CHAMPION Expanding Mandrels are used in machine shops around the world. Save time, cut production costs, whether the job calls for machining one piece or a thousand.

**Precision Model** has expansion range of .010". Available in regular sizes to fit holes from ½" to 3" diam. Holds work to tolerances of .0002" run-out. Guaranteed for precision grinding, turning and milling operations.

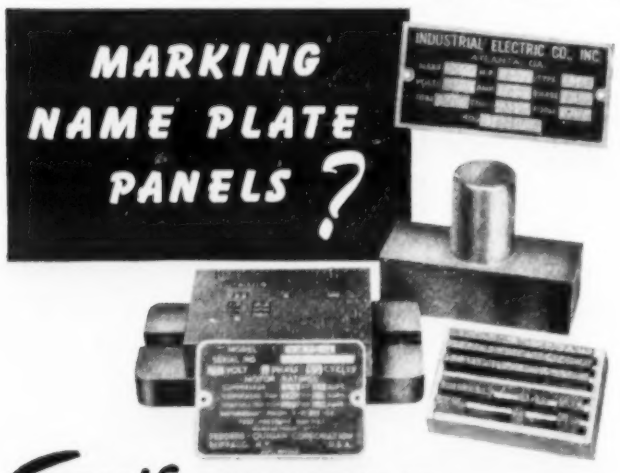
**Standard Model** maintains close tolerances, handles material of any length bore, hard or soft metals — from thin tubes and bushings to heavy castings and forgings. A set of fourteen will fit every hole from ½" to 9½" diam.

CHAMPION *Expanding Mandrels can be made in special shapes and sizes to fit any specifications. Quotations on request. Write for descriptive folder today.*

**WESTERN TOOL & MFG. CO., INC.**
Dept. 22 Springfield, Ohio

If you write maker identify as IEN - 10860

# MARKING NAME PLATE PANELS ?




*Specify* MODEL PSF-10

## PRESS STAMPING FIXTURE

One stroke of the press marks any number of name plate panels with one or more characters—neatly and legibly—with this press stamping fixture. Gauge pins provide for quick, accurate positioning of plates for fast production marking. Send sample plates and panel marking for prompt quotation.

*Write* for new Catalog 100 today!

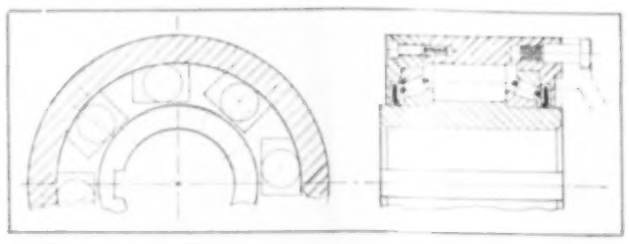
Mecco SAFETY MARKING TOOLS **M.E.CUNNINGHAM CO.**

**1039 CHATEAU STREET, PITTSBURGH 33, PA.**

If you write maker identify as IEN - 10861

## DRIVE . . Locking roller clutch for one way operation, to 8 in. bore

**Source: ODIN CORP.**
**P. O. Box 6032-A, Indianapolis 20, Ind.**



**Overall bore range now ⅛ to 8 inches**

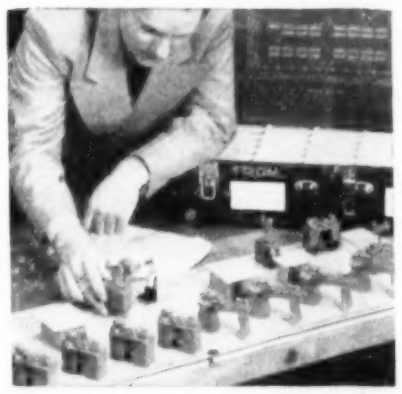
**A new design,** suitable for manufacture in large heavy duty sizes, has been added to the company's free wheeling or one-way miniature clutch previously described IEN-10726-52. The original design was for shaft sizes from ⅛ to ¼ inch. The new unit can be specified for application on shafts as large as 8 inches. It is suited particularly for steel fabricating equipment and mill machinery requiring 24-hour duty.

**The clutch rollers** ride in pockets between the steel hub and the outer steel housing. They are free in one direction of rotation. They grip, with negligible lost motion, in the opposite direction. Roller bearings keep the hub and outer housing in accurate alignment so the driving rollers need not take any of the clutch weight. Seals keep lubricant in and dirt out. Model 1000, with 1-in. bore, measures 3¾ in. in outside diameter by 2½ in. in overall length. Model 5000 has a 5-in. bore and measures 13 in. in diameter by 10 in. in length. The unit with 8-in. bore is available to special order. It measures 19 by 12 inches.

If you write maker identify as IEN - 10862

## LAYOUT . . Scale size models of lathes, grinders, drills, shapers

**Source: SOUTH BEND LATHE WORKS**
**301 E. Madison St., South Bend 22, Ind.**



**Bulletin 5301**

**Nine models** in several sizes of each are included in a new kit of three-dimension units, scaled ¾ in. to the foot, of the company's line of bench and floor lathes, pedestal tool grinders, drilling machines and bench type shapers. The models are packaged with a scaled planning board in a shipping case. The company offers them, on a loan basis, to assist in plant layout. The models include several workers that can be positioned at the machines.

**You make** your request on a coupon forming part of a piece of literature on which you estimate the number of days you will require the models and the date you will return them. The models themselves list at $1 each for those you desire to keep. The only charge, otherwise, are for transportation to and from your plant for the models loaned.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10863

## YOU can save money with The Wallace VAPOR DEGREASER

- √ Electric
- √ Automatic
- √ Portable
- √ Production Size
- √ Insulated
- √ Galvanized

For quick, inexpensive cleaning of oils, grease, etc., from screw machine parts, die-castings, stampings; parts to be painted, plated, preserved or repaired.

No plumbing required—the portability of the Wallace DG-1 Degreaser makes it popular with large plants for "on the spot" cleaning jobs. Its low price brings it within the budget of the smallest shop.

For free bulletins and prices, write *today.*

**J. D. WALLACE & COMPANY**
146 S. California Ave. Chicago 12, Ill.

If you write maker identify as IEN - 10864

*Ind. Ad T-623(34)*

## Control Carbon Atmosphere As Easily As You Do Temperature!

• Now, for the first time, surface carbon of steel parts is being automatically regulated during the entire carburizing or hardening cycle. To do this, the Homocarb Method with Microcarb Atmosphere Control measures and regulates carbon content of the furnace atmosphere surrounding the work, directly in percent carbon.

In many plants it has proved a practical means for lowering production costs . . . obtaining higher quality . . . improving process automation . . . eliminating wastes and spoilage.

For more information, ask for Folder T-620(14). Leeds & Northrup Co., 4905 Stenton Ave., Philadelphia 44, Penna.

**LEEDS & NORTHRUP**
*instruments* *automatic controls • furnaces*

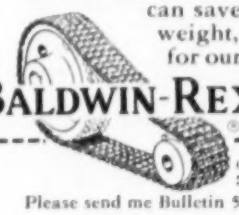
If you write maker identify as IEN - 10865

# SAVE 2 WAYS on Chain Drives and Conveyors

***This Book Shows You How***

With Baldwin-Rex Double Pitch Roller Chain, you save both cost and weight without sacrificing the high quality of standard roller chain. Where speeds are slow to medium, loads are moderate and centers are long, Double-Pitch is often the economical choice.

For all the details on how this precision chain can save you important money and weight, just use the coupon to send for our free Double-Pitch Bulletin.



**BALDWIN-REX ROLLER CHAINS**

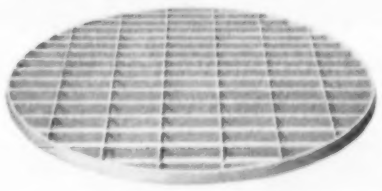
Chain Belt Company 53-409
358 Plainfield Street, Springfield 2, Mass

Please send me Bulletin 51-2.

*Name*.....
*Company*.....*Dept*.....
*Address*.....
*City*.....*State*.....

If you write maker identify as IEN - 10866

# REMOVE THE DANGER OF OPEN AREAS



## Here's the Solution!

Blaw-Knox Electroforged Steel Grating is the ideal "coverage" for unprotected pits, light wells, basement stairways and other hazardous open areas. It is a one-piece steel "material" that provides safe footing under any conditions, and admits the maximum of light and air. *Strong . . . Silent . . . Secure.* Thousands of installations are still on the job after 20 years of traffic!

**Send us dimensional sketch**
We will then forward you price on grating cut to exact size. No nuts, no bolts, no special tools required. Don't delay . . . write today and make those danger spots both safe and usable!

**BLAW-KNOX COMPANY**
*Grating Department*
BLAW-KNOX EQUIPMENT DIVISION
2050 Farmers Bank Bldg.
Pittsburgh 22, Pa.
Sterling 1-2700

ELECTROFORGED® STEEL

**BLAW-KNOX GRATING**

If you write maker identify as IEN - 10867

**Variable Speed Drive Parts**

1 Upper Section showing spindle V-pulley and Vari-Speed belt.

2 Vari-Speed Control.

3 Lower section, showing Variable Speed V-Pulleys and Vari-Speed belts.

Belts are easily replaced. Spindle Speed Chart on gear guard provides clearly marked settings for various speeds.

*Get facts from your Logan Dealer, or Write*

**LOGAN ENGINEERING CO.,** Lawrence and Lamon Aves., Chicago 30, Ill.

**Infinite Spindle Speeds, 38 to 1575 rpm**

The Logan 12" Lathe now offers either the V-belt Drive or Variable Speed Drive, *at the same economical price*. Where work requires a variety of spindle speeds, the Logan Variable Speed Drive definitely reduces costs. On large diameter facing, optimum surface speed is maintained by simply turning the Speed Control Handle as the cutter goes into the work. No need to stop the lathe. No belt shifting. See *all* the features of the 12" Logan.

**Brief Specifications**

Swing over bed and saddle wings, 12" . . . Center Distances, 23" and 35" . . . Turret Lathes Models have 43" bed length . . . 1¼" spindle hole . . . 1" collet capacity . . . 16 standard V-belt drive spindle speeds, 35 to 1230 rpm. . . . Variable Speed Drive Models, infinite spindle speeds from 38 to 1575 rpm.

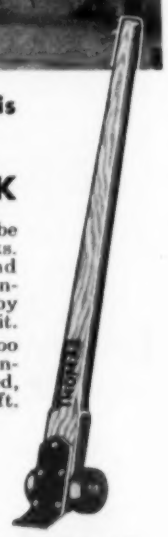
If you write maker identify as IEN - 10868

**This Very Odd-Looking Truck is one of the Handiest Made**

## THOMAS PRY TRUCK

A tremendous amount of freight can be moved by 2 men with Thomas Pry Trucks. Sharp steel nose slides under load and powerful leverage (5000 lbs. capacity) enables user to raise and move load, or by raising load to place rollers on dollies under it.

Crates and machinery, too heavy or too bulky to handle with anything else manually, can quickly and easily be shifted, stored, loaded or unloaded. 5, 6 or 7-ft. handle lengths.



**Write** for Free Literature showing other models (4250 and 3500 lb. load capacities).

**THOMAS TRUCK & CASTER CO.**
439 Mississippi River, Keokuk, Iowa

If you write maker identify as IEN - 10869

# NEW and TIMELY!

**Get This Information on How to Select Stainless Steels to . . .**

- ✓ Conserve Critical Alloys
- ✓ Reduce Unit Costs
- ✓ Improve Performance

This new, 18-page bulletin, "Factors in Selecting Stainless Steels" gives facts and figures on . . .

- Possibilities of straight chrome grades as alternates for chrome nickel grades
- General types of stainless steels
- Physical and mechanical properties
- Relative workability tables
- Relative corrosion and heat resistance

*CLIP AND MAIL COUPON NOW!*

**THE CARPENTER STEEL COMPANY**
151 W. Bern St. • Reading, Pa.

At no obligation, send me a copy of your new "Factors in Selecting Stainless Steels".

NAME _____ TITLE _____
(Please Print)

COMPANY _____

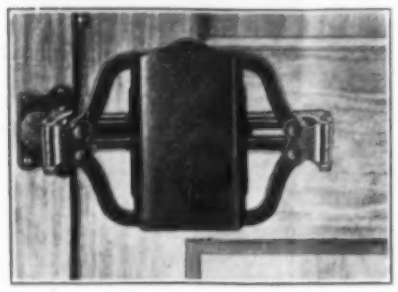
ADDRESS _____

CITY _____ ZONE _____ STATE _____

If you write maker identify as IEN - 10870

## DOORS . . Spring closer and check closes door firmly without slamming

**Source: BLOOMFIELD MFG. CO.**
**200 W. Spring St., Bloomfield, Ind.**



**Decorative**

**Kant-Slam** trade names a new toggle design spring operated combination of door closer and check. It mounts on a door frame and applies against the face of the door without being secured to it. It can be arranged to hold the door open at 15 deg. beyond right angle when this is desired. A finger touch will close the door.

**One size** of the assembly applies with three sizes of spring for light doors, gates, heavy doors. The springs can be changed without removing the unit from the door. It is adjusted by turning an outside screw.

If you write maker identify as IEN - 10871

## PROTECTING . . Strippable coating to spray on lacquered product surfaces

**Source: MAAS & WALDSTEIN CO.**
**2128-32 McCarter Highway, Newark 4, N. J.**

**Simplifies packaging**

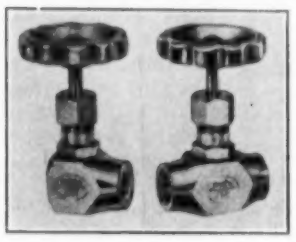
**Products** and product parts that have been finished with lacquer, particularly air drying nitrocellulose, can be protected during handling, storage and shipping by application of the company's new Copeel No. 583. This new strippable material, companion to the materials previously described IEN-3054-48, is completely free from any tendency to "lift" the nitrocellulose finish when it is stripped off so there is no danger of injuring the finish in the stripping operation.

**The material** is supplied as a liquid in quantities of 5 gal. or more. It can be applied with ordinary spraying equipment. It air dries quickly to a film about seven mils in thickness.

If you write maker identify as IEN - 10872

## VALVE . . Needle design, brass or stainless steel bar stock

**Source: HOKE INCORPORATED**
**203 S. Dean St., Englewood, N. J.**

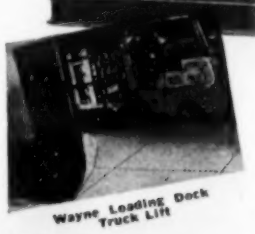


**Series 270**

**Sizes** range from ⅛ to ½ in., in pipe thread connections, for this new needle valve. It is made in angle and straight patterns to handle liquids and gases. O-ring or standard packing can be specified. The former is suited particularly for test panel service. No packing adjustment is required. The valve stem is self-aligning to assure tight seating. The packed design can be repacked under pressure. Each valve is equipped with a black plastic wheel.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10873



Wayne Loading Dock Truck Lift

Wayne Bascule Cross-Over Bridge

Wayne Loading Dock Ramps can slash 75% from truck loading time . . . Wayne Platform Lifts speed inventory stocking . . . Wayne Cross-Over Bridges eliminate roundabout hauling. From unloading of raw materials to loading of finished products, there's a Wayne Industrial Lift to speed your production, cut handling costs.

Wayne Lifts are custom-engineered to your plant's requirements . . . designed to save you time, labor and money . . . keep maintenance and down time at minimum. Other Wayne Lifts include truck lifts, sidewalk elevators, service lifts—all "precision-eered" for years of trouble-free operation and stepped up production. Write today for new Wayne Industrial Lift Booklet.

**THE WAYNE PUMP COMPANY**
Salisbury, Maryland — Toronto, Canada

Wayne — NATION WIDE SERVICE

WAYNE LIFT DIVISION, Salisbury, Md.

If you write maker identify as IEN - 10874

## NEW EXACT WEIGHT Net Weighing Machine . . .

Here is a NEW moderately priced, automatic weighing machine featuring fine sensitivity and accuracy . . . *visual indicator*, not present in most net weighing units . . . *fully automatic operation* . . . *Speed*, with very free-flowing materials (½ lb. to 1 lb. quantities), 25 weighments per minute . . . *Accuracy* down to ½ gram with free flowing materials. Speed and accuracy for heavier weighments and products harder to feed determined by product test . . . *Flexibility*, weighments from 1 gram to 10 lbs. with model shown . . . *Mobility* is possible if unit is mounted on casters for service from several hoppers . . . *Easy maintenance* due to elimination of unnecessary housings and enclosures. Write for details as to construction and what equipment comprises.

# EXACT WEIGHT SCALES

BETTER QUALITY CONTROL
BETTER COST CONTROL

**THE EXACT WEIGHT SCALE COMPANY**
932 W. Fifth Avenue, Columbus 8, Ohio
2920 Bloor St., W., Toronto 18, Canada

If you write maker identify as IEN - 10875

# STONEHOUSE SIGNS FOR ACCIDENT PREVENTION

**SAVE** The WORKER and you SAVE PRODUCTION

Stonehouse Signs are made in accordance with "American Standards Ass'n Specifications for Accident Prevention Signs"...the only authentic standards.

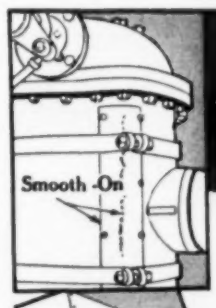
Hundreds of different stock-worded signs for prompt shipment • Special worded Accident Prevention signs also produced to your specifications.

*Our complete Catalog No. 9, 64 pages, full color, free on request.*

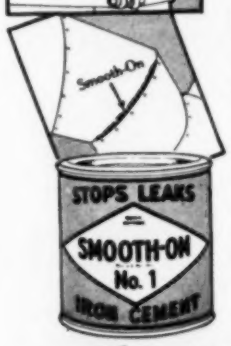
Stonehouse SIGNS, inc. MANUFACTURERS
Stonehouse Building · 842 Larimer
Denver 4 Colorado
"Signs Since 1863"

**ACCIDENT PREVENTION SIGNS IN STANDARD COLORS AND DESIGNS**

If you write maker identify as IEN - 10876




# Repairs both Cast and Sheet Metal




The quick-hardening, fast-clinging, temperature-resistant properties of Smooth-On No. 1 Iron Cement make it just right for countless repairs in industrial plants, shops, homes. It seals cracked castings, stops leaks in breeching, tightens loose rivets, bolts, screws and machine parts. Does not require use of heat or "gadgets." Any handy man can use it successfully. Buy Smooth-On No. 1 in 1-, 5- or 20-lb. size and keep it handy. If your supply house hasn't Smooth-On, write us.

**FREE** Famous Repair Handbook

Now in its 28th edition, this 40-page fully illustrated, pocket-size manual shows many short-cut, time-saving, money-saving repairs to machinery, equipment, pipe lines, etc. Drop us a line for YOUR free copy.

SMOOTH-ON MFG. CO., Dept. 1
570 Communipaw Avenue, Jersey City 4, N. J.
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*Do it with* **SMOOTH-ON**
THE IRON REPAIR CEMENT OF MANY USES

If you write maker identify as IEN - 10877

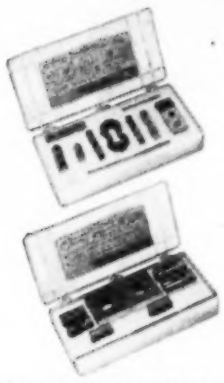
*Compare . . . If it's P-K, it's O. K.*

**PARKER-KALON®**

*The Original* **SELF-TAPPING SCREWS**

If you write maker identify as IEN - 10878

## Plant efficiency, safety improved with CARBOLOY® permanent magnets



Shop Packages 1 and 2 described below.

**USERS REPORT ON "YOU-TRY-IT" KITS**

Shop Supt. says magnets " . . . *prove very successful for holding parts during stroke of press*" in piercing die operation.

Welding Plant owner finds magnets " . . . *handy to position wire frame assembly while spotting.*"

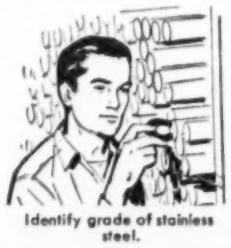
Plant Engineer, typical of the hundreds of shop men trying magnet Shop Packages in their own plants, says, "*We have just begun to realize the possibilities of this product.*"

THESE are but 3 of hundreds of comments from shop men who have obtained "You-Try-It" Shop Packages of Carboloy permanent magnets.

They find the powerful, lasting energy of the magnets ideal for holding, lifting and separating jobs . . . for speeding setups, production . . . for saving time, money plantwide.

Order Carboloy magnet "You-Try-It" Shop Packages yourself. Perhaps they will spark you, too, to savings in your plant. See coupon.

Hold small parts for light grinding.



Identify grade of stainless steel.

Hold shield during paint spraying.

**Get the "YOU-TRY-IT" Magnet Assortment**

**Shop Package No. 1** — Contains 48 Carboloy permanent magnets: 8 styles — 3 pairs each. Magnetic pull up to 2 lbs. per magnet. Price $10.00 (subject to applicable sales and use taxes). Order today.

**Shop Package No. 2** — Contains 18 magnets: 4 styles — 2 pairs each; and 1 style — 1 pair. Magnetic pull from 3 lbs. to 12 lbs. per magnet. Price $15.00 (subject to applicable sales and use taxes). Order today.

"Carboloy" is the trademark for the products of the Carboloy Department of General Electric Company

**MAIL THIS COUPON TODAY**

**CARBOLOY**
DEPARTMENT OF GENERAL ELECTRIC COMPANY
11177 E. 8 Mile Avenue, Detroit 32, Michigan

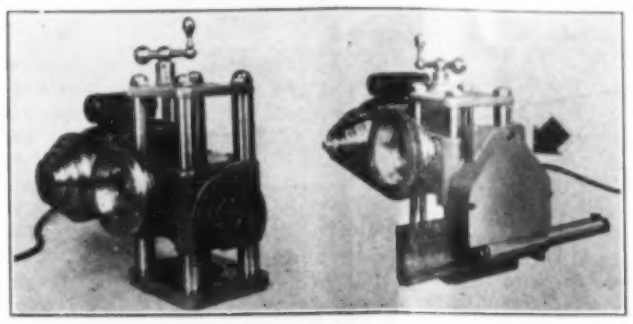
☐ Send me free Magnet Idea Literature Kit.
☐ Send me____ Shop Package No. 1 at $10.00 each, postpaid.
☐ Send me____ Shop Package No. 2 at $15.00 each, postpaid.
☐ Enclosed is check or money order for $____. ☐ Send C.O.D.

Name_____ Position_____
Company_____
Address_____
City_____ Zone_____ State_____

If you write maker identify as IEN - 10880

## MACHINING . . Portable power head to bore, drill, grind, mill and shape

**Source: VERSA-MIL COMPANY**
**33 W. 42nd St., Dept. IEN, New York 36, N. Y.**



**Description, specifications, prices on request**

**Illustrated** to the left is basic design of the Versa-Mil portable power head to mount on a machine or a workpiece and perform a range of machining operations. To the right is a new attachment, added to those previously developed. It converts the rotary spindle action to reciprocation. This new attachment applies in internal or external keyseating, slotting, shaping in interchangeable draw or push operation.

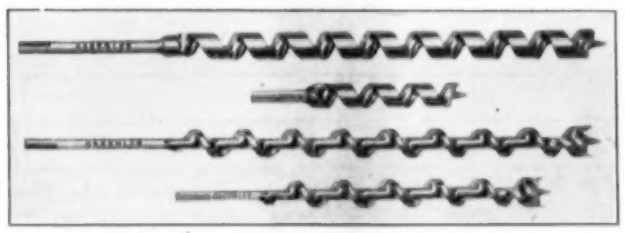
**Keyseater** designates the attachment. It will cut internal keyways from ⅛ to 1 in. in width in bores measuring ½ in. or greater. Its stroke is adjustable to any amount, maximum at 5 inches. "Clapper" action relieves the cutter on its return stroke. Keyways measuring 4½ in. in length have been made in SAE No. 1020 steel using a ½-in. cutter and 0.007 in. of feed per stroke. Maximum cutter reach is 7 inches. Cutting speed is adjustable between 44 and 450 strokes per minute. Cut width is maximum at 1 inch. Stroke angle is through 360 degrees.

**The basic head** is available in two sizes with hand-operated leadscrew movement, on its columns, of 4 and 6 inches. The roller bearing spindle carries a No. 2 and No. 3 Morse taper to take the ball and roller bearing attachments for the various machining operations. A sliding base, operated by a lead screw, is available to provide feed for the head at right angles to its own screw feed when it is mounted on a stationary surface rather than a machine.

If you write maker identify as IEN - 10881

## WOOD WORKING . . Twist drill bits for use with portable electric tools

**Source: GREENLEE TOOL CO.**
**2134-38 12th St., Rockford, Ill.**



**Specifications and prices on request**

**Straight shanks,** to apply in the chuck on a portable electric tool, are now available in the company's lines of single-twist, solid-center and ship-auger drill bits. Each bit carries a fine pitch screw point to compensate for the high rotating speed of the electric tool. The bit is heat treated for strength.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10882

If you write maker identify as IEN - 10883

## Small precision metal parts... Torrington makes them better, and for less!

FREE CATALOG — shows the great variety of small parts we can produce inexpensively and promptly. Send for copy today!

If your product uses small precision metal parts . . . pivots, pins, dowels, rollers, mandrels, needles, punches, etc. . . . send us your blueprints for a prompt quotation.

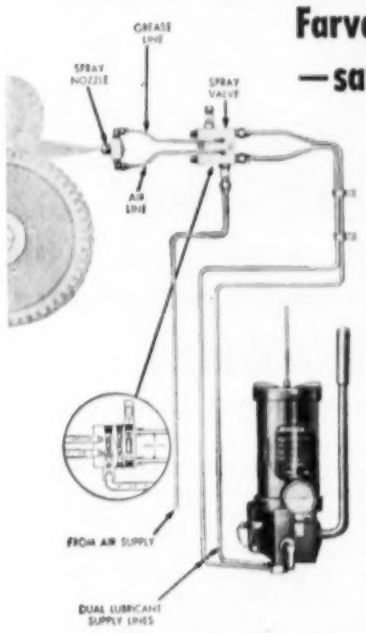
As a leading contract fabricator, TORRINGTON is equipped with the special machinery to produce in any quantity for quick delivery at low prices.

THE TORRINGTON COMPANY
*Specialties Division*
360 Field Street • Torrington, Conn.

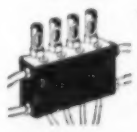
Makers of
**TORRINGTON NEEDLE BEARINGS**

If you write maker identify as IEN - 10884

## Lubricate open gears evenly with Farval Spray Valve —save up to 95%




● For three years, Farval Spray Valve Systems have been distributing and maintaining oil or grease films evenly on open gears and slide surfaces. Farval Spray Valves save up to 95% of lubricant, eliminate friction, increase machine efficiency, lower power costs, reduce wear on bearing surfaces. Write for Farval Spray Valve Bulletin No. 60 today.



**THE FARVAL CORPORATION**
*Centralized Systems of Lubrication*
3258 East 80th Street, Cleveland 4, Ohio
*Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing.*

If you write maker identify as IEN - 10885

## NEED COPIES?
**—produced in your own office**

**MODERN MIMEOGRAPHING** — New equipment and supplies for the fast production of copies on a wide variety of paper and card stocks. A. B. Dick mimeograph products are for use with all makes of suitable stencil duplicating products.

**MODERN SPIRIT DUPLICATING**—Completely new A. B. Dick spirit duplicator produces 120 to 150 sharp copies a minute in 1 to 5 vivid colors from one master in one operation. Automatic feed—post card to legal size—16 lb. to 70 lb. stock.

**MODERN OFFSET**—A. B. Dick lithograph direct image plates and masters provide for (1) longer runs with sharp definition—(2) easier corrections — (3) more successful filing — (4) marked superiority in resistance to fingerprints.

(MODERN FOLDING—small, low-cost A. B. Dick electric folding machine saves time and money.)

*Write Dept. IEN-53 for full information—or call the A. B. Dick Distributor listed under Duplicating Products in the classified section of your phone book.*

A·B·DICK
THE FIRST NAME IN DUPLICATING
A. B. Dick Company • 5700 Touhy Avenue • Chicago 31, Illinois

If you write maker identify as IEN - 10886

# BIG NEWS!

**Both *Inch-Pound* and *Foot-Pound* Models of Amazing PROTO Torquer Now Available!**

Announced in January! Over 30,000 bought by March 31!! That's the whirlwind success story of the sensational PROTO torque-*limiting* wrench. In addition to foot-pound models, you can now buy *inch-pound* styles and these handle thousands of jobs. Buy the model you prefer from your PROTO dealer today! Send 10¢ for 68-page catalog of entire line to

PLOMB TOOL COMPANY
2271Z Santa Fe Avenue,
Los Angeles 54, Calif.

Ratchet Head Model

Head of Plain Head Model

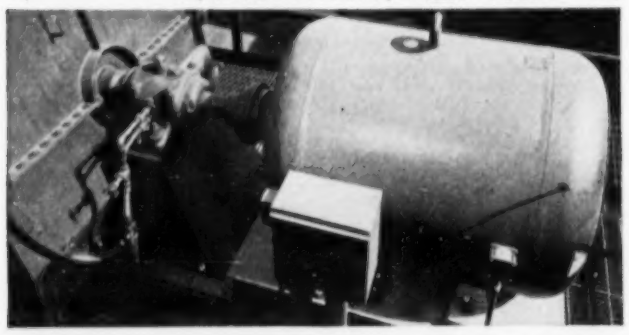
**Fastest Torquer in the World!**
- Automatic Torque-Limiting Release
- NO Dials, Scales or Pointers to Watch or Break
- Ratchet Head Models Save Time
- Accurate Micrometer-Type Adjustment
- Trouble-Free Construction

5383

Eastern Factory: Jamestown, N.Y.
Canadian Factory: London, Ont.

PROTO TOOLS
PROTO means PROfessional TOols

If you write maker identify as IEN - 10887



## 250 hp, 220 volt motor starts with minimum line voltage disturbance

## ...it's a Wagner

### Increment Motor and Starter Combination

This fly ash control equipment is powered by a 250 hp, 220 volt, 1160 rpm, totally enclosed, fan-cooled Wagner increment motor and starter combination — an economical method of starting polyphase, squirrel-cage motors where reduced current draw at start is required or desirable. Voltage disturbances on the line are reduced, because current taken from the line is not broken during the starting period. Inrush of motor current is limited to values acceptable to most power companies. For complete information, send for Bulletin MU-128.

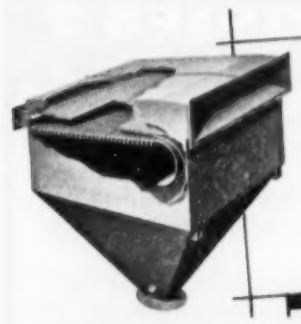
Wagner Electric Corporation
EST. 1891

6414 PLYMOUTH AVENUE
ST. LOUIS 14, MO.

ELECTRICAL EQUIPMENT AND AUTOMOTIVE BRAKE PRODUCTS

M53-6A

If you write maker identify as IEN - 10888



## Solves Big Problem for Small Boiler Operators!

**Buell 'LR' Collector** gets 99% of all 100-mesh and larger cinder discharge. Top efficiency for boilers from 100 to 2000 BHP.

Draft loss so low you can use 'LR' on the smallest natural draft boilers.

Get all the facts—write for 'LR' Bulletin. Buell Engineering Company, Dept. 22-J, 70 Pine Street, New York 5, New York.

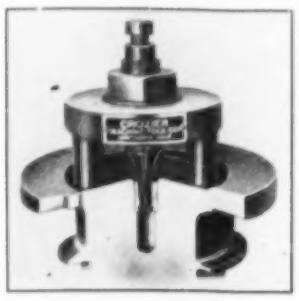
**buell**

*Engineered Efficiency in*
**DUST COLLECTION**

If you write maker identify as IEN - 10889

## PULLING . . Sleeve extractor expands to grip and remove a bushing

Source: CROZIER MACHINE TOOL CO
682-86 No. Prairie Ave., Hawthorne, Calif.



For small holes

**Ten sizes** range downward from ¾ to ¼ in. for this new assembly of the company's bushing puller, previously described IEN-9352-52. Overall range for the new tool, and the initial one, is now ¼ to 2 in. in bushing bore. The puller includes the expanding sleeves in single units of specified size or sets of two, four or ten, a draw table to support the sleeve in the pulling operation, a draw nut and anti-friction washer.

**Each sleeve** terminates in a split shoulder that reaches back of the bushing to be pulled when it is expanded in place. The new tool and any two sleeves list at about $20.

If you write maker identify as IEN - 10890

## WATER PROOFING . . Colorless liquid repels water from exterior masonry

Source: EVERSEAL MFG. CO.
250 W. 57th St., Dept. IEN, New York 19, N. Y.

Treated surface can be painted

**Inviso** is a new colorless liquid for application by brush or spray to the exterior surfaces of masonry such as brick, cinder block, concrete, limestone, stucco. It can be employed also on cement and asbestos siding. The liquid pentrates into the pores to repel water and prevent its penetration. It does not stop breathing action so trapped moisture can escape. One gallon will cover 200 to 300 square feet. The material is not recommended for surfaces previously coated with oil base paints or stearate waterproofing. It will not change the surface appearance, color or texture of the masonry.

If you write maker identify as IEN - 10891

## TIMING . . Alarm wrist watch rings bell at time set on watch face

Source: EDMUND SCIENTIFIC CORP.
309 E. Gloucester Pike, Barrington, N. J.

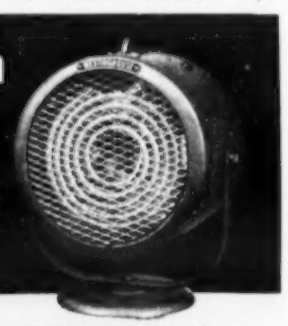
About $50

**Shockproof** non-magnetic movement in this new wrist watch includes a sweep second hand and a rotating rim with which an alarm can be set to ring at any desired time. The signal is loud when a sound bridge is located under the watch housing. The signal is a soft one when the sound bridge is folded under the wrist strap. The movement will operate for 42 hours on one winding. The watch is imported from Germany.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10892

## MORE HEAT with LESS SPACE use Westinghouse Air Heaters



Westinghouse COROX® and SPEEDTEMP forced convection air heaters are especially designed for space or area heating. They provide positive air circulation to maintain a comfortable room temperature without cold spots. For out-of-the-way, hard-to-heat places, here is the fast, efficient way to provide low-cost heat. Investigate these versatile heaters today.

**FREE 26-Page Catalog**—Tells you how to select the proper heater that will best fill your needs. Excellent information on heating insulated and non-insulated rooms. A definite help in your heater selection. Mark inquiry card for Catalog 28-020, or write Westinghouse Electric Corp., Industrial Heating Dept., Meadville, Penna.

J-10414

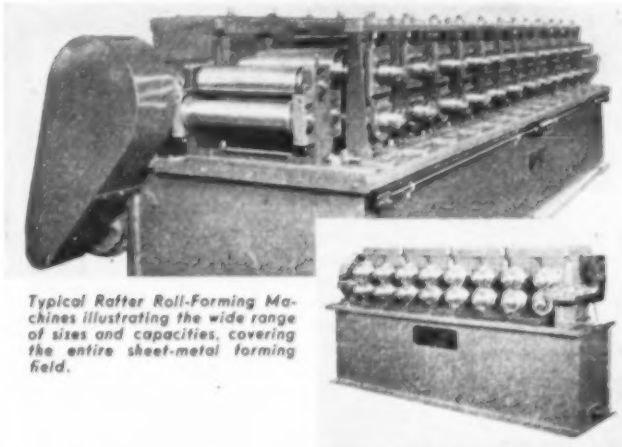
YOU CAN BE SURE...IF IT'S Westinghouse

APPARATUS DISTRIBUTOR WESTINGHOUSE

If you write maker identify as IEN - 10893

## RAFTER COLD METAL ROLL-FORMING MACHINES

*Correct Design for Maximum Efficiency*



*Typical Rafter Roll-Forming Machines illustrating the wide range of sizes and capacities, covering the entire sheet-metal forming field.*

Patented balanced gear drive mounted on roller bearings distributes power efficiently to each pair of rolls . . . Gear ratio is a continuous reduction from drive shaft to roll shaft, quiet, efficient and compact. This drive consumes less power than any other type . . . Exclusive design permits greatest vertical adjustment of the upper roll spindles, without the aid of square gearing or small complicated gears . . . Design permits quickest and most accurate change of rolls possible. Shafts always remain parallel. Adjusting screws connect front and rear bearings . . . Low power consumption, lasting accuracy, longer roll life, and higher output are made possible by these and many other features.

**RAFTER MACHINE COMPANY, INC.**
SINCE 1917
249 Stephens Street • Belleville 9, N. J.
**GANG SLITTERS and PRESS BRAKE DIES**

If you write maker identify as IEN - 10894

## CMH REX-WELD FLEXIBLE METAL HOSE

**absorbs piping punishment**

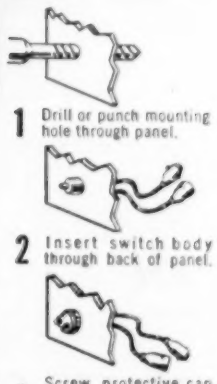
Rex-Weld is a high pressure, high temperature, flexible metal hose designed for the protective piping of searching liquids or gases. Rex-Weld absorbs the stresses of vibration — flexation — expansion and contraction — bridges the gaps in misalignment. The range of applications for Rex-Weld is virtually unlimited. Burst pressures to 12,000 psi and temperatures to 1,000 F. Available in steel or bronze — braid covered or unbraided in a wide range of sizes with fittings to meet your needs. Write today for complete information.

*See our Catalog in Sweet's Plant Engineering File*

**CHICAGO METAL HOSE**
DIV. FLEXONICS CORPORATION
1333 S. Third Avenue, Maywood, Illinois
Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.
*In Canada:* Flexonics Corporation of Canada, Ltd., Brampton, Ontario

If you write maker identify as IEN - 10895

**Easy as ..ONE..TWO..THREE**



1 Drill or punch mounting hole through panel.

2 Insert switch body through back of panel.

3 Screw protective cap over push-button end of switch.

***...to install this waterproof push-button switch!***

Here's the ideal switch for low current use! It's quickly installed . . . works perfectly under water, or from 65° below zero to 165° above . . . and withstands salt spray, shock and vibration. Mechanism is permanently encased in a special molded rubber compound with waterproof ordnance-type leads vulcanized to the case, connectors waterproof when required. Continuous rating of 10 amps. at 15 or 30 volts D.C. or 125 volts A.C. Single throw, one circuit, normally "open." Part of our extensive *standard* line of waterproof switches. We also offer complete design service on "specials." Send problem details for full information.

See us at the Refrigeration & Air Conditioning Exposition, Cleveland, Nov. 9-12, Booth No. 842

**Riverside** MANUFACTURING AND ELECTRICAL SUPPLY CO.

10218 MICHIGAN AVENUE • DEARBORN, MICHIGAN • PHONE Tiffany 6-6800

WIRING HARNESSES AND ASSEMBLIES • CORD SETS • HEATER AND EXTENSION CORDS • ELECTRICAL SWITCHES • RELAYS • MOLDED RUBBER PRODUCTS

If you write maker identify as IEN - 10896

## The glass of a *Champion*

A glass bubble, blown around a filament for a man named Edison at a place named Corning, led to mass production of incandescent bulbs about the time Champion Lamp Works was founded—in 1900.

Today's "ribbon" machine turns out a million bulbs a day to glass wall thickness tolerances of no more than .0075".

Glass for Champion Lamps must be strong and resistant to the attack of water, chemicals, fumes, grit, wind and flame. It must keep Champion Lamps ready to perform like Champions.

Write for new booklet D, CHAMPION QUALITY, containing much interesting, illustrated information.

**CHAMPION LAMP WORKS**
*Lynn, Massachusetts*
A DIVISION OF CONSOLIDATED ELECTRIC LAMP CO.

If you write maker identify as IEN - 10897

**FIT THE HEAT TO YOUR WORK**

Chromalox Electric Tubular Heaters are available in straight lengths or they may be curved and formed to fit your exact specifications. They provide accurately controlled, economical and dependable convection, conduction or radiant heat. Use them for dies, molds, platens; as immersion heaters in liquids, soft metal and molten salts; or in ovens, air ducts and other air heating applications. Consult Chromalox now for all your production heating needs.

**For Full Details**
Write for Catalog 50. It lists Chromalox Tubular Heater sizes, types and ratings; sheath materials, fittings and special shapes.

**Industrial Div., EDWIN L. WIEGAND CO. 7505 Thomas Blvd., Pittsburgh 8, Pa.**

See Chromalox Electric Units Advertisement, Page 5

**CHROMALOX**
**ELECTRIC HEAT FOR MODERN INDUSTRY**

If you write maker identify as IEN - 10898

Our relay stock, which is the world's largest, has been carefully built up over a period of several years. Nothing but first run, professionally selected items are carried.

Write for New 16 Page Catalog

*Send us your relay requirements. You will receive immediate quotations.*

*samples on request.* *Phone, Wire or Write*

**Relay Sales**
SEeley 8-4146
4721 W. MADISON STREET
DEPT. NO. 9 CHICAGO 44, ILLINOIS

If you write maker identify as IEN - 10899

## DRILLING . . Upright machine, also for tapping, is air operated

**Source: BECKETT-HARCUM COMPANY**
**1138-42 Wayne Road, Wilmington, Ohio**

**Ask for bulletin**

**Capacity** is to ¾ in. in mild steel for the company's new Model C-16 upright drilling machine with its pneumatic feed and electric controls. A companion Model C-16-T adds motor reversing action and is suited for tapping to 1½ in. National Coarse threads when a 1½-hp. motor is employed. The spindle in both machines carries a No. 3 Morse taper and is standard with a 4-in. stroke.

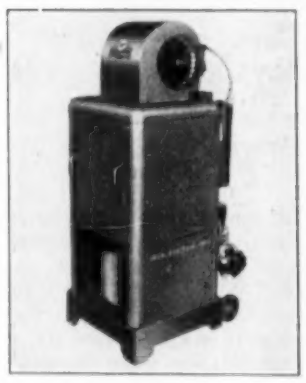
**Feed** is by a pair of pneumatic cylinder and piston assemblies located vertically to straddle the quill housing, the same as in the machine previously described IEN-8471-51. Approach and return speed and thrust pressure are variable and can be adjusted quickly. Maximum thrust is 980 lb. based on 100-lb. line pressure. Precision limit switches and the company's instant acting Hi-Cyclic air valve provide for depth control. A dashpot controls the spindle movement when the drill breaks through the work.

**The tapping machine** provides air pressure control that permits the tap to provide its own lead without dragging or forcing. Spindle and motor reverse at the same instant to bring the tap back from a threaded hole and the tap comes out without any tendency to break the last thread.

If you write maker identify as IEN - 10900

## HEATING . . Oil fired space unit delivers heated air at the floor line

**Source: FAGEOL HEAT MACHINE CO.**
**5723-27 Mount Elliott Ave., Detroit 11, Mich.**



**Self-contained assembly**

**New side panels** have been developed for addition to the Model PW-189 space heater, previously described IEN-7635-52. The original machine delivered heat in three directions just above the floor. The new panels can be positioned so all of the heat can be concentrated in one direction to heat the interiors of freight cars, construction machinery, local areas in buildings, loading docks, and in warming valves and tanks, de-icing equipment stored outdoors, thawing pipes and frozen ground.

**The oil burner** fires into a cylindrical combustion and heat transfer chamber through which air is drawn by a motor operated centrifugal blower located on the heater housing. The blower draws air in at the top, delivers it downward through the transfer chamber and out at the floor line. Air handling capacity is 1,500 cfm. Heat rating is 189,000 btu. per hour. Mounting is on two wheels and two feet. Weight is 235 pounds. Dimensions are 21 by 33 by 58 inches.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

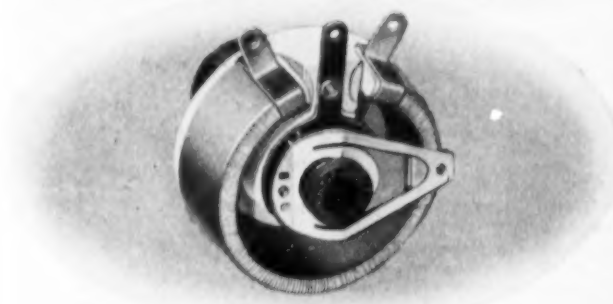
If you write maker identify as IEN - 10901

If you write maker identify as IEN - 10902

**Sta-Warm ELECTRIC CO.**
**560 N. CHESTNUT ST., RAVENNA, OHIO**

If you write maker identify as IEN - 10903

## TWO EXCLUSIVE FEATURES IN NEW VITROHM RING RHEOSTATS GIVE POSITIVE CURRENT CONTROL



MYCALEX insulating hub of Ward Leonard's new Ring Rheostats is *molded* to one end of the drive shaft to give more positive control and eliminate backlash.

Double ended, balanced spring steel contact arm, interlocked to the insulating hub, assures uniform contact pressure.

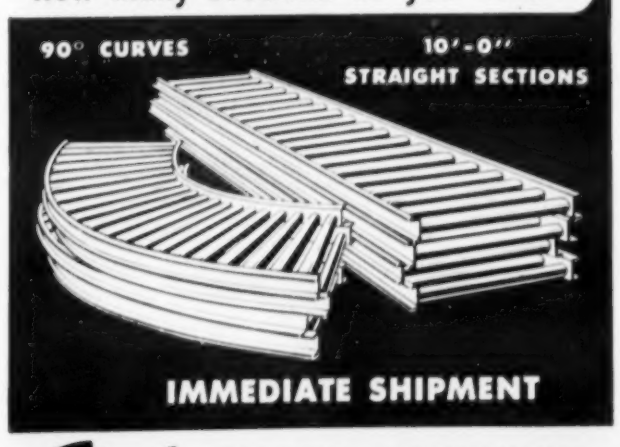
Stock types: 25R and 50R, 25 and 50 watts, 1 to 10,000 ohms.

**Write Ward Leonard Electric Company, 33 South St., Mount Vernon, N.Y.**

**WARD LEONARD ELECTRIC CO.**
*Result-Engineered Controls Since 1892*
RESISTORS • RELAYS • MOTOR CONTROLS • CHROMASTER

If you write maker identify as IEN - 10904

## How many sections do you need?



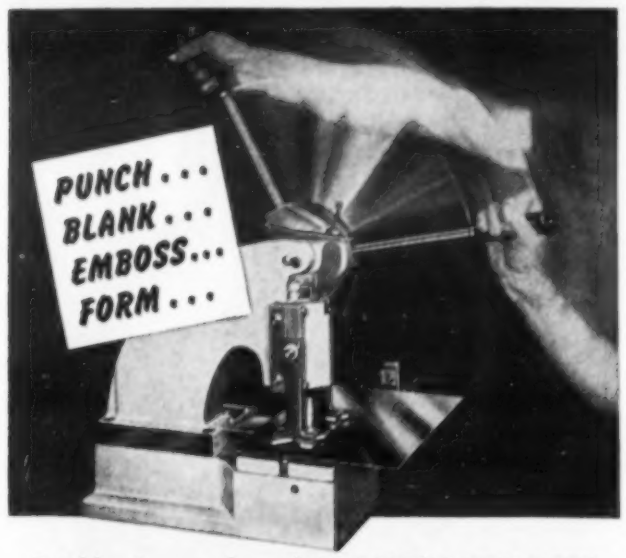

## *Stock* ROLLER CONVEYOR

Offered in several sizes for average duty conveying. Roller spacing 4" or 6" centers. Roller lengths of 12", 16" and 20". Can be used with rolls set high, or inverted so that rolls set low and frame forms a guard rail. Both stationary and portable supports available. Use coupon for literature.

**Logan CONVEYORS**
LOGAN CO., 276 Cabel St.
LOUISVILLE, KY.

LOGAN CO., LOUISVILLE, KY.
☐ Send literature on Stock Conveyors
Mr. _____
Firm _____
Address _____

*If you write maker identify as* IEN - 10905




## Quickly, Accurately with DI-ACRO* PUNCH PRESS

Deep throats—6 and 12 inches—of Di-Acro Punch Presses make them ideal for many operations impossible to perform on most bench presses.

Holes of various shapes and sizes—as large as 4" in diameter in 16 gauge steel—can be punched. Rated capacity, 4 tons. Also power models.

A wide variety of readily interchangeable punch press accessories are available for both production and experimental work. Punches are offered in round, square, rectangular and oval shapes.

*pronounced Die-ack-ro

**SEND FOR 32-PAGE CATALOG**
*Creators of "Die-Less Duplicating"*

di-acro PRECISION METALWORKING MACHINES

**O'NEIL-IRWIN MANUFACTURING CO.**
318 8th AVE. • LAKE CITY, MINN.

*If you write maker identify as* IEN - 10906

## Chicago RIVET "912"
AUTOMATIC RIVET SETTER
CUTS COSTS 3 WAYS

**1 FASTENS FASTER . . .**
Only the speed of the operator limits the 912's riveting speed. Completely automatic. A push on the foot pedal automatically feeds, inserts and clinches the rivet.

**2 DOES WORK OF SEVERAL MACHINES**
Quick change rotary hopper and raceway makes the 912 adjustable in 5 to 10 minutes to set different size rivets. Adjustable anvil height and 12-inch throat provide further versatility.

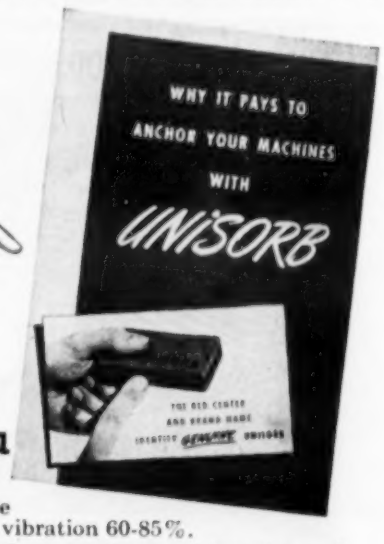
**3 SAVES ON MAINTENANCE . . .**
The 912 is massively built to stand the shocks of constant use and is designed for quick, easy servicing and parts replacement.

If your assembly calls for 3/16" steel tubular rivets or smaller, of 15/16" lengths or less, ask us to show you how the 912 can cut your fastening costs. Send a sample of your problem assembly (or blueprint) for a free fastening analysis.

**FREE CATALOG**
*contains valuable engineering information and rivet specifications plus illustrated descriptions of 26 Chicago Automatic Rivet Setters.*

**Chicago Rivet & MACHINE CO.**
9602 West Jackson Boulevard, Bellwood (Chicago Suburb) Illinois
Branch Factory: Tyrone, Pa.

*If you write maker identify as* IEN - 10907




## this book shows you how to

Reduce machine noise and vibration 60-85%.

Avoid floor drilling by mounting machines the modern way, without bolts or lag screws.

Reduce maintenance costs by eliminating transmitted vibration which damages machines, floors and buildings.

Save time and money when installing new machinery or repositioning present machinery.

*Write today for your free copy of "Why It Pays To Anchor Your Machines With UNISORB."*

**THE FELTERS COMPANY**
208 South Street, Boston 11, Massachusetts

**UNISORB® MOUNTINGS** are used with our special adhesive. UNISORB is also available precoated with adhesive, for use with machines that do not require shimming.

*If you write maker identify as* IEN - 10908

## LIGHTING . . Reflector lamps in range of 14 permanent color beams

**Source: AMPLEX CORPORATION**
**109-13 Water St., Dept. CB, Brooklyn 1, N. Y.**

**Sealed beam, silver reflectors**

**Several shades** each of amber, blue, green, orange, red and yellow are included in the company's new line of Colorbeam reflector lamps. Eight of the 14 colors are available in the Baby R30 and the Flood PAR38, to the left and center in the illustration. The Standard R40, to the right, can be ordered in any of the 14 colors. Type PAR30 can be used outside or in.

**The lamps** are interchangeable with ordinary reflector lamps. Sizes range from 75 watts for the R30, 150 watts for the PAR38, and R40 to 200 and 300 watts also for the R40. List prices are $1.50 to $3.10 each.

*If you write maker identify as* IEN - 10909

## INSULATING . . Aluminum paint reflects heat from roof surfaces

**Source: EVERSEAL MFG. CO.**
**250 W. 57th St., Dept. IEN, New York 19, N. Y.**

**Also protects roof materials**

**Lowtemp** trade names a new aluminum ready mixed paint to apply as an insulating coat on composition, felt, built-up roofs or any other roof surface. Application is by brush or spray. Coverage is about 200 sq. ft. per gallon. The same material prevents loss of heat in cold weather.

*If you write maker identify as* IEN - 10910

## RECORD KEEPING . . Microcard reader magnifies and displays micro records

**Source: MICROCARD CORPORATION**
**Box 314-DD, La Crosse 1, Wis.**

**For office, laboratory**

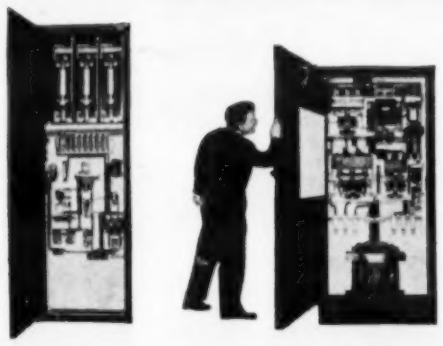
**Information** that has been printed, drawn, typed, letters, records, instructions, are reduced in size and applied, 50 to 80, on a 3 by 5-in. card for storage in a small space, in a service established by the company. It now offers its Microcard Reader to magnify this miniaturized data and to display it on a screen measuring approximately 10 by 10 inches.

**As an example,** 18,600 letter size reports requiring 31 four-drawer files can be put on the cards to be stored in a single card cabinet. A knob is turned to bring a given page into position on the screen.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 10911

## STARTERS FOR BIG MOTORS



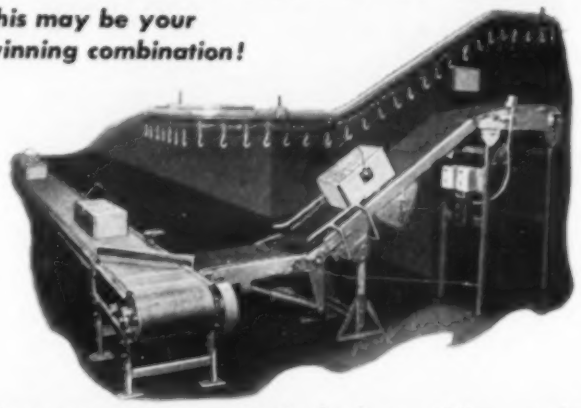
The motor starters, shown above, are examples of the many big units in the Allen-Bradley line. Various types of manual or automatic starters for synchronous motors are available . . . up to 900 hp, 4600 volts maximum. High voltage squirrel cage automatic motor starters are listed up to 700 hp, 2000 to 4600 volts. Relays and contactors are time tested A-B designs. If you need starters for big or small motors, specify Allen-Bradley.

Allen-Bradley Co.
1312 S. Second St., Milwaukee 4, Wis.

**ALLEN-BRADLEY** QUALITY
MOTOR CONTROLS

*If you write maker identify as* IEN - 10912

*This may be your winning combination!*



## Automatic materials handling with MHS STANDARD UNITS

*Send for* FREE Bulletin PE-2 today!

MHS Transveyor, Liftveyor and Junior Monoveyor combine with simple transfers to make an automatic materials handling system. Conveyor units are stock items, ready to ship, economical to buy, easy to erect, efficient in operation.

Look into MHS pre-engineered conveyors to speed handling, cut labor costs, reduce expense!

**MECHANICAL HANDLING SYSTEMS INC.**
4605 Nancy Avenue, Detroit 12, Michigan
*Offices in Principal Cities*
In Canada: Canadian Mechanical Handling Systems Ltd., Toronto

*If you write maker identify as* IEN - 10913

**Just 1/32" (pinhole size) faucet leak**

## MUSHROOMS into ATOMIC WASTE

***of approximately 95,000 gallons of water yearly—costing:***

## $24.14

***@ $1.90 per M cubic feet***

If a hot water faucet, then actual FUEL WASTED heating 95,000 gallons costs approximately:
$58.91 if coal (9879 lbs.)
$91.08 if oil (792 gals.)
$84.41 if gas (84,411 cu. ft.)

Above figures authenticated by Hackensack Water Co. and American Gas Association.

STOP this needless WASTE during today's MATERIAL and MANPOWER shortages with "SEXAUER" "Easy-Tites" that outwear ordinary faucet washers 6-to-1, thus SAVING labor on 5 REPEAT repairs, PLUS water and fuel, while prolonging the life of SCARCE fixtures.

PAT'D.

## "EASY-TITE" Faucet washers

...a modern laboratory triumph, are compounded from du PONT NEOPRENE (tested up to 300°F.) instead of rubber—to withstand DESTRUCTIVE HEAT common to present-day supercharging water systems—that formerly broke down washer's structure.

***Built like a tire with fabric reinforcement***

they resist the grinding, closing squeeze that SPLIT and MUSH ordinary washers out of shape...causing LEAKS.

Through combining NEOPRENE and FABRIC REINFORCEMENT they OUTWEAR ordinary washers 6-to-1 on hot or cold FAUCETS—thus you slash water, fuel and labor costs.

**THE NEW "SEXAUER" CATALOG,**
Edition G, just out pictures over 2500 TRIPLE-WEAR plumbing REPAIR parts and Pat'd. Precision Tools. It's today's accepted buying guide for discriminating purchasing and maintenance personnel among thousands of top PLANTS, INSTITUTIONS and GOVERNMENT AGENCIES that rely on SEXAUER repair materials. Send for your copy today!

Then too, there is a SEXAUER TECHNICIAN within quick call from coast-to-coast, who offers a special SURVEY service that sets up a schedule of the exact replacement parts required for your particular plumbing fixture regardless of make or age and *without obligation.*

***A postcard will bring him and your NEW Catalog promptly.***

J. A. SEXAUER MFG. CO., INC., Dept. K-103
2503 B Third Avenue, New York 51.

*as advertised in* THE SATURDAY EVENING POST

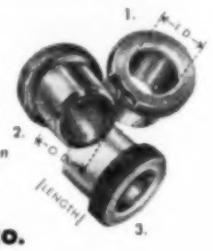
**SEXAUER**
WORLD'S LEADING SPECIALISTS IN PLUMBING AND HEATING REPAIR PARTS

*If you write maker identify as* IEN - 10915

It's not new! For years American has used 3-D to simplify ordering drill bushings. American's original three dimension ordering plan; 1-I.D., 2-O.D., and 3-length, eliminates confusing code numbers...saves time, trouble!

Fully stocked distributors located in every major area throughout the U.S. You can get the right drill jig bushing when you want it!

*Order American Drill Bushings the 3-D way... send for the new catalog with the KING SIZE selection of standard sizes.*



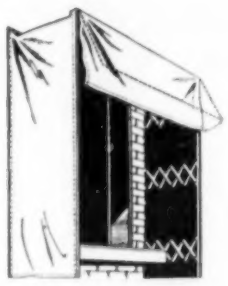

**AMERICAN DRILL BUSHING CO.**
5107 Pacific Blvd., Los Angeles 58, Calif.

TRADEMARK

SPECIALIZING ONLY IN DRILL JIG BUSHINGS

*If you write maker identify as* IEN - 10916

# PROTECTS YOUR
## RAILROAD SIDING OR TRUCK
# LOADING DOCK



**Men and merchandise remain dry . . . damage is prevented.**

A simple, inexpensive way to make your loading dock useful the year around. Mamaux Dry Dock Cover folds flat when not in use. Made of heavy flame and water-resistant canvas, sturdy frames and hardware. Cover roof slopes for rain run-off; canopy extends inside car or truck—keeps walkway dry.

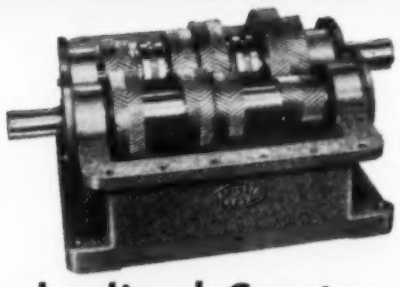
Three scissors arms on each side offer rigid support. No bottom bar to impede truck tailgate.

***Write or phone for full details***
***Each cover is custom made to fit your loading dock***

**A. MAMAUX & SON**
**120 Blvd. of Allies • Pittsburgh 22 Pa.**
**Phone COurt 1-3500**

*If you write maker identify as* IEN - 10917

**Philadelphia**
# CHANGE-SPEED UNIT



## Standardized Construction
### *—to give you Greatest Economy*

Based on long experience in building Change-Speed Units to individual specifications, Philadelphia has developed a line of *standardized* units. This cuts the high cost and delayed deliveries of former methods.

Units are positive geared drives using herring-bone gears throughout. No belts to wear or slip. Ratios are definite for speed increasing or reduction or in combination. Wide range of horsepowers in 2, 3 and 4 speed units.

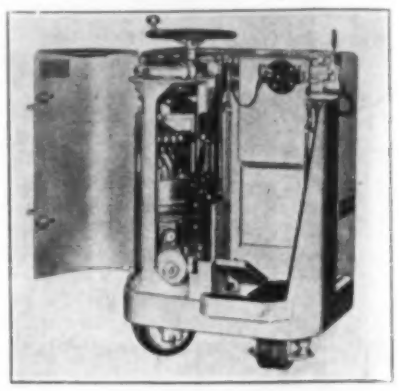
*Write for catalog giving full details.*

**PHILADELPHIA GEAR WORKS, Inc.**
ERIE AVENUE AND G STREET • PHILADELPHIA 34, PA.
NEW YORK • PITTSBURGH • CHICAGO • HOUSTON • LYNCHBURG, VA.

*If you write maker identify as* IEN - 10918

## TRUCK . . Motor driven power lift fork and platform designs, to 2 ton

**Source: RAYMOND CORPORATION**
**35115 Madison St., Greene, N. Y.**



**Opens like a book**

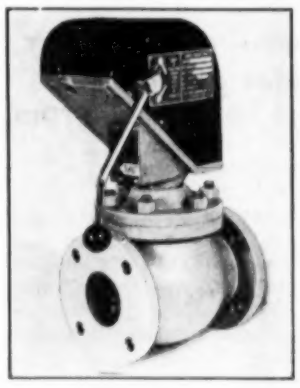
New power unit has been developed and now is standard equipment on the company's lines of electric trucks starting with the Spacemaker assembly previously described IEN-2150-50. The new unit is basically the same as the original design with its motor mounted above and chain connected to the rubber tired drive wheel and with the steering wheel at the top to turn the complete unit for operation forward, reverse, or around a turn. It also includes the motor driven pump that supplies hydraulic pressure for the vertical movements.

**The new design** features hinged doors for access to the operating parts, a combination three-speed travel switch and elevating control to permit raising a load while the truck is moving, a manual lowering valve to control speed of lowering, a ¼-in. steel plate dash panel and leg guard, a ½-in. steel bumper and a roller mounted battery for quick removal and replacement. Guards for the operator's legs are padded with sponge rubber. He rides in protected position.

*If you write maker identify as* IEN - 10919

## VALVE . . Safety shut-off design closes when solenoid circuit opens

**Source: NORTH AMERICAN MFG. CO.**
**4459 E. 71st St., Cleveland 5, Ohio**



**Data Sheet V-22-1**

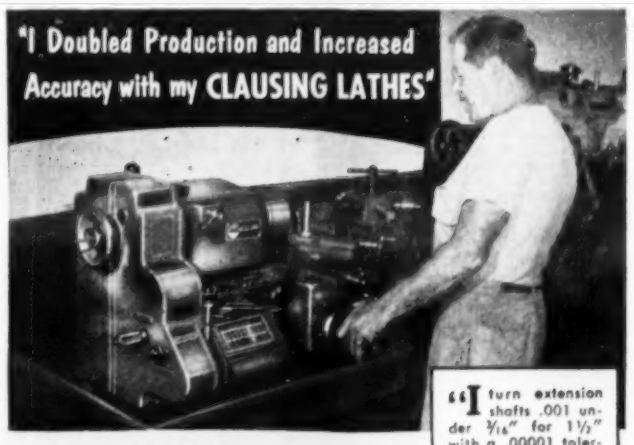
**Series 22** designates a new valve to stop the flow of gas or liquid when the circuit to its releasing solenoid is opened. Then the solenoid releases a latch mechanism which permits a compression spring to close the valve. It cannot be opened until the circuit is reclosed, the mechanism set and the opening lever operated. The valve can be closed manually, while the solenoid circuit remains closed, by swinging the reset handle to trip position.

**Sizes** range from ¾ to 6 in. with threaded connections to 2 in. and flanges in the larger units. List price ranges from $75 to $280. Mounting can be made in a vertical or horizontal line. The valve also can be located out of reach for operation with a chain and reset wheel in place of the reset lever.

**The mechanism** will operate satisfactorily in ambient temperature to 167 deg. F. It will handle oil to 250 deg. F. An auxiliary switch can be mounted on the valve housing and connected into the circuit to signal when the valve closes.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 10920




"I turn extension shafts .001 under 3/16" for 1½" with a .00001 tolerance. The diameter must be .1865 for the full length. It's easy to maintain this accuracy with my Clausings and I can't do it with other lathes. I doubled production and increased accuracy with my Clausing Lathes." — James H. Sawyer.

## CLAUSING 6300
### 12" HEAVY DUTY PRECISION LATHE

The Clausing 6300 Series has every advanced feature that contributes to machining speed and efficiency. 1" collet capacity — 1⅜" bore — forged steel spindle with tapered, key-lock nose—Timken tapered roller bearings — quick change gears — heavy duty bed. 8 speeds, 50 to 1300 RPM. 12¾" swing over bed, 7½" over saddle. 24"-36"-48" between centers. See the Clausing 6300 at your Atlas-Clausing distributor's.

**Send for Catalog TODAY!**

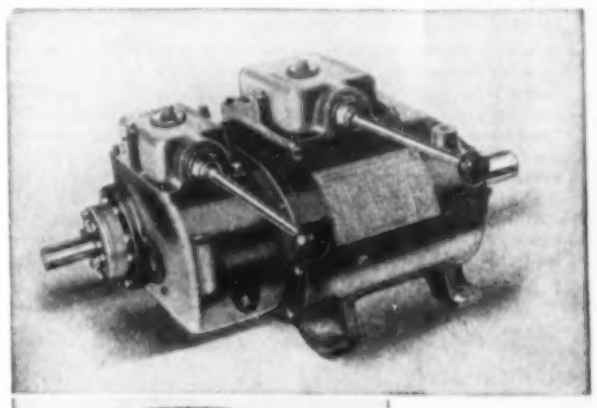
**CLAUSING DIVISION**
ATLAS PRESS COMPANY, 10105 N. PITCHER ST., KALAMAZOO, MICHIGAN
LATHES • DRILL PRESSES • SHAPERS • MILLING MACHINES

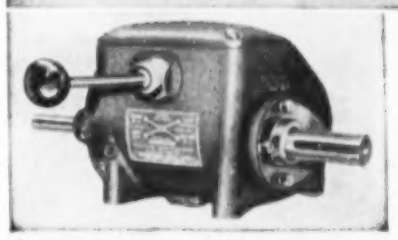
*If you write maker identify as* IEN - 10921

**WESTERN "SUPER" *with* 8 SPEED CHANGES**

For use on large lathes, boring mills, chemical and rubber machinery, etc., and used for replacement of gear boxes on large radial drills. Capacity 50 H.P.

in geometric progression of 1.29 (total reduction of 6:1)





(left) "900 B series" has a 5 hp. capacity with input speed of 900 r.p.m. . . . 4 gear changes are available through one-shift-lever automotive type.

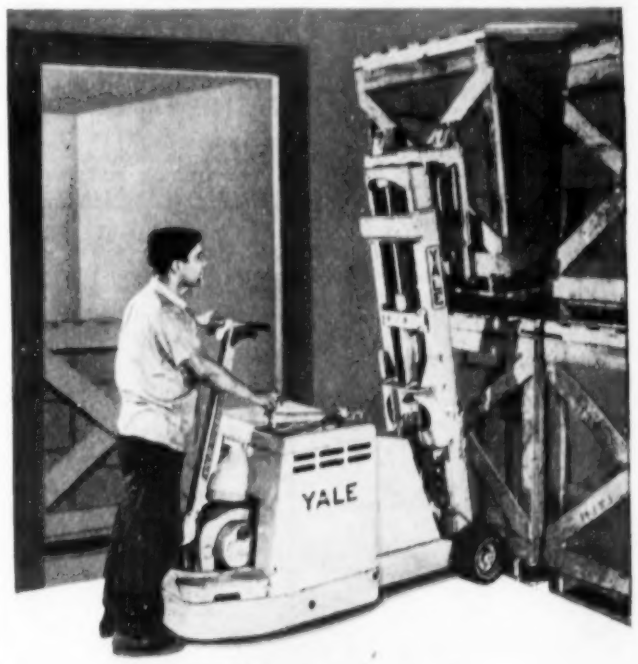
Ratios — 1:1, 2:1, 3:1, 4:1.

On special machines where transmissions are required — a standard WESTERN model can often be adapted to give the required spindle speeds . . . and even when modifications are made, a WESTERN for the basis of the design greatly simplifies the problem. Similar transmissions of 10 hp. capacity are available . . . we can *supply the necessary V-belts, sheaves, output pulleys, and motors from stock.*

*up to 100 h. p.* For Motorizing Lathes, Milling Machines, Shapers, Turret Lathes, Radial Drills, Slotters, Bolt Cutters, Gear Cutters, Die Sinkers, Boring Mills, etc.

**WESTERN TRANSMISSIONS**
WESTERN MANUFACTURING CO. — 5202 SCOTTEN — DETROIT, MICHIGAN

*If you write maker identify as* IEN - 10922




# YALE
# *WORKSAVERS*
## give big truck power... where big trucks can't go

• Where size and weight rule out big trucks, YALE WORKSAVER ELECTRIC TRUCKS take over. Yes, YALE WORKSAVERS save industry time, manpower and money where low-load capacity flooring, unreinforced elevators and ramps had previously restricted materials handling operations to back-breaking manual moving, lifting and stacking.

YALE WORKSAVERS give big truck advantages...big truck versatility . . . at small truck cost! Features include forward and reverse power travel—hydraulic lift—complete range of use-extending attachments. Contact your local Yale Representative for a demonstration of the WORKSAVER line in your own plant . . . at your own time.

# YALE*
**Registered trade mark*

**MATERIALS HANDLING EQUIPMENT**

MAIL THIS COUPON TODAY

**The YALE & TOWNE Manufacturing Co., Dept. 3610**
Roosevelt Blvd. and Haldeman Ave., Phila. 15, Pa.

Please have your local representative call for an appointment.

Company_____

Name_____ Title_____

Street_____ City_____ State_____

*In Canada Write:* The Yale & Towne Mfg. Co. St. Catharines, Ontario, Canada

**Gas, Electric, Diesel Lift Trucks • *Worksavers* • Hand Trucks • Hand and Electric Hoists • Pul-Lifts**

If you write maker identify as IEN - 10924

# Rolling Steel Doors

## Manually, Mechanically, or Power Operated

Below you see Mahon Power Operated Rolling Steel Doors installed in six truck openings to a motor freight loading dock. Another Mahon Power Operated Rolling Steel Door 17'-0" x 22'-0" is installed in a railroad opening in connection with this same loading dock. Rolling Steel Doors occupy no usable space either inside or outside the opening . . . they create no overhead obstructions—cranes may be employed to handle materials adjacent to the door opening. Quick opening, quick closing, vertical roll-up action saves valuable time . . . all-metal construction provides permanence, greater protection against intrusion and fire, and assures you a lifetime of trouble-free service. Write for Catalog containing complete information including Specifications.

THE R. C. MAHON COMPANY
Detroit 34, Michigan • Representatives in All Principal Cities

MAHON

If you write maker identify as IEN - 10925

# WEBB TOWVEYOR*

## for FASTER, EASIER and SAFER MATERIALS HANDLING

**FASTER**—Towveyor chain automatically picks up load when pin attached to truck is dropped into slot. Material is delivered to destination without wasted traveling time.

**EASIER**—Minimum handling of loads by personnel—trucks engage Towveyor chain or are disengaged at any point with a simple lowering or raising of towing pin.

**SAFER**—Clear floors with no obstacles for employees to walk or truck over, and there are no overhead chains or supports to present safety hazards.

Cut your handling costs with a "Towveyor" system that will speed up distribution, permit faster filling of orders and easier loading or unloading of freight cars and trucks.

*TOWVEYOR is a registered trademark identifying floor truck conveyors manufactured and installed by the Jervis B. Webb Company

For Further Information, Please Write To:

JERVIS B. WEBB COMPANY
8915 ALPINE AVE.
DETROIT 4, MICH.
OFFICES IN PRINCIPAL CITIES
CONVEYOR ENGINEERS AND MANUFACTURERS

If you write maker identify as IEN - 10926

# SAVE Maintenance AND Towel Costs WITH

## Sani-Dri ELECTRIC Hand or Hair Dryers

Save valuable maintenance time and eliminate continuing towel expense. New, improved features make Sani-Dri faster drying . . . provide quick, automatic hand or hair drying service 24 hours a day year after year! Sani-Dri is a permanent solution to washroom sanitation and drying problems—and SAVES UP to 85% of WASHROOM COSTS!

*All Sani-Dri Electric Dryers are GUARANTEED, and have carried the Underwriter's Seal of Approval for over 18 years!*

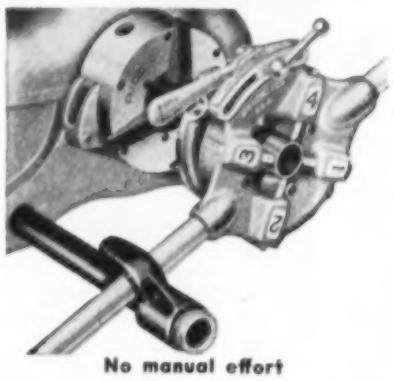
SEND FOR NEW BROCHURE showing all models and installation pictures.

Distributors in Principal Cities
THE CHICAGO HARDWARE FOUNDRY CO.
"Dependable Since 1897"
3410? Commonwealth Ave. • North Chicago, Ill.

If you write maker identify as IEN - 10927

## THREADING . . Pipe die head for power drive, cuts 1 to 2 in. pipe

Source: RIDGE TOOL CO.
352 Clark St., Elyria, Ohio



No manual effort

**Ridgid "504"** is a new pipe threading head to apply with a power drive such as the machine previously described IEN-5593-52. The head is self-contained and can be set to thread 1 to 2-in. pipe using a single set of four die segments. The quick opening handle retracts the dies without stopping the drive. **Die adjustment** can be made without removing the head from the driving machine. The head operates without a lead screw. It is supplied with a set of high speed steel dies and a preset four-jaw centering guide. It will cut oversize, undersize and extra long threads.

If you write maker identify as IEN - 10928

## PAINTING . . Multi-pigment primer for ferrous and non-ferrous metals

Source: EVERSEAL MFG. CO.
250 W. 57th St., Dept. IEN, New York 19, N. Y.

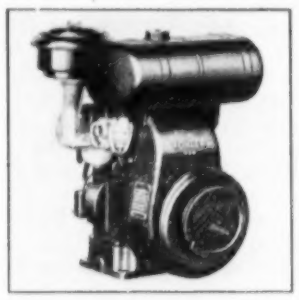
For tanks, bridges, ships, structures

**Zinc chromate,** iron oxide and red lead are ground in a synthetic vehicle in manufacture of the company's new Everkrome metal primer. The material covers, in one coat, to a smooth uniform finish. The film is elastic, resistant to attack by sulphuric acid fumes. It will not bleed through a white finish coat. Thinning is with turpentine or mineral spirits. Drying is in about four hours. Coverage is about 600 sq. ft. per gallon.

If you write maker identify as IEN - 10929

## ENGINE . . Single cylinder gasoline, air cooled, rates 6.6 hp. at 3,600 rpm.

Source: KOHLER COMPANY
1230 High St., Kohler, Wis.



Easy to service

**Model K160** is a new addition to the company's line of single cylinder 4-cycle gasoline engines previously described IEN-3595-52. Three types are fitted with a direct mounting crankcase, a 6 to 1 reduction gear, and a hand clutch. Equipment includes an oil bath air cleaner, flyball governor, fuel filter, muffler, 1¼-gal. fuel tank, ball bearing crankshaft, breaker points and a "stop" button in dust and moisture proof assembly. The screened air intake forms a part of the rotating rope starter wheel.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10930

# HEAT THAT MOVES AROUND

If you write maker identify as IEN - 10931

# CESCO safety equipment

Shows newest styles and designs of:

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CESCO FOR SAFETY
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If you write maker identify as IEN - 10932

# Protect Your Plant With DUNKING STATIONS

The safe solution to your plant smoking problem! Sipco Dunking Stations prevent fires. Cigarettes, cigars, matches, etc. immediately extinguished—no smoldering—no fire hazard! Built specifically for hard industrial use—and abuse.

**Unit No. 1**—Heavy cast aluminum canister, attractive metal sign, upright and heavy weighted base for use on floors, aisles, etc.

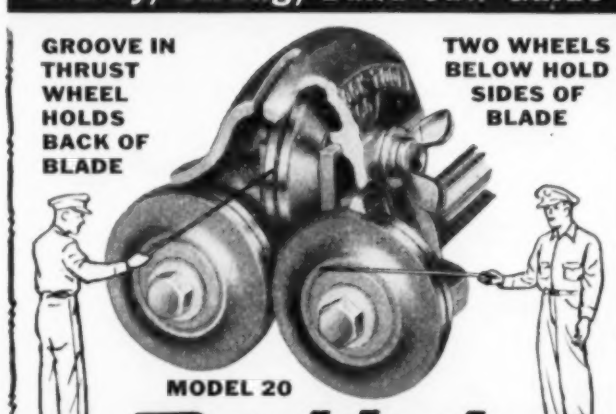
**Unit No. 2**—Same as Unit No. 1 except without upright and base. Easily mounted on walls, columns and posts.

**Unit No. 3**—Canister alone, with mounting bracket.

Write now for illustrated folder which gives complete details.

STANDARD INDUSTRIAL PRODUCTS CO.
Dept. N, 116 South Garfield Ave., Peoria, Ill.

# Sturdy, Strong, Band-Saw Guide




MODEL 20

## Paddock BALL-BEARING BAND SAW GUIDES

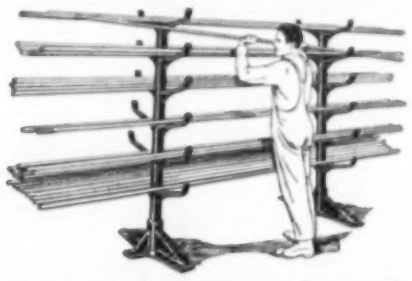
A sturdy guide that lasts for years, MODEL 20 can be installed on machines having 2½" back of blade to guide post and is designed to work above or below saw table. Cut-out section of illustration shows V-shape groove of thrust wheel which supports and holds back of blade. Interchangeable ball-bearing wheels run with blade and give friction-free support to blade. Easier and better adjustment for thrust wheels for ⅛" to 1¼" wide blades. Models for large or small machines. Write for complete details. Give size, make of machine on which guide will be used.

SHIPPED ON APPROVAL WHERE VALUE IS QUESTIONED

PADDOCK TOOL COMPANY
*Guide Makers Since 1920*
1418 Walnut Street • Kansas City, Mo.

If you write maker identify as IEN - 10934

## for EFFICIENT HANDLING and ORDERLY STORAGE



You save time, both in storing and in issuing, when you use Brown Sectional Racks. Open sides speed handling. Complete visibility permits quick selection to save waiting mechanics time.

Maximum flexibility in arrangement is possible because each Brown Rack is independent and self-contained, need not be bolted to floor. Easily relocated. Systemized storage with Brown Racks promotes good housekeeping, cleanliness.

All iron and steel construction, can't burn, bend, sag or warp. Never wear out.

Get these values now! Write for complete specifications and prices on wide range of models and sizes. Brown Engineering Co., 122 N. Third St., Reading, Pa.

**BROWN QUICK-SERVE RACKS**

If you write maker identify as IEN - 10935

## READY FOR INSTANT SERVICE

A Horton elevated water tank provides 24-hour-a-day fire protection. Water from the tank is available whenever it's needed. Consider this fact when you install or expand your fire protection system. Your decision may save both lives and money.

Horton elevated water tanks with ellipsoidal bottoms are built in standard capacities from 15,000 to 500,000 gals. State capacity, height to bottom and location when requesting prices.

**CHICAGO BRIDGE & IRON COMPANY**

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Atlanta • Birmingham • Boston • Cleveland • Detroit
Houston • Los Angeles • New York • Philadelphia • Pittsburgh
San Francisco • Seattle • Tulsa

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PA.

If you write maker identify as IEN - 10936

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## The greatest cost-saving labor-saving FINISHING DEVELOPMENT in a decade!

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DEPT. G-10

**ALMCO Supersheen**

AMERICA'S LARGEST MANUFACTURER OF ADVANCED BARREL FINISHING EQUIPMENT – MATERIALS AND COMPOUNDS

ALBERT LEA, MINNESOTA

If you write maker identify as IEN - 10937

## HANDLING . . Safety load hook, gate unlocks and rotates to open

**Source: E. D. BULLARD COMPANY**
**273-77 Eighth St., Dept. B, San Francisco 3, Calif.**

Locks automatically

**Six hook** sizes, equipped with the new Burnham safety hook gate, are included in a new line of Bullard-Burnham hooks made of drop forged steel. The gate casting is manganese bronze in the larger sizes and titanium in the smaller ones. A lock pin on the pivoted shank is rust proof design.

**Finger pressure** is sufficient to release the lock. It will not come loose accidentally. Smallest, No. 2 hook, has a 1-in. throat opening and rates ½ ton load. The largest, No. 16, has a 4½-in. opening and rates 25 ton.

If you write maker identify as IEN - 10938

## HARDBOARD . . Grain free panel ⅜ to ¾ in., smooth finish on faces

**Source: FOREST FIBER PRODUCTS CO.**
**Dept. IEN, Forest Grove, Oregon**

About $212 to $356 per thousand feet

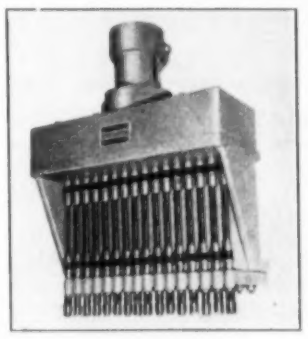
**For all** trade names a new hardboard panel measuring 4 by 8 ft. in standard dimensions by ⅜, ½, ⅝ or ¾ in. in thickness. The panel is made from Douglas Fir wood, screened and processed to remove the bark. It is finished smooth on both faces. Its dent resistant surface requires no sanding prior to finishing. It is light in color so light stains, as well as paints and enamels, can be employed to produce a variety of finish effects.

**The grain free structure** can be worked by sawing, rabbeting, routing without any danger of splitting or splintering. No edge mold or edge patching is required. Packaging is in units of three panels measuring ⅜ or ½ in. in thickness or two measuring ⅝ or ¾ inch. The panels are wrapped to protect the finished surfaces.

If you write maker identify as IEN - 10939

## DRILLING . . Multi-spindle head, in-line design, ¼ inch in cast iron

**Source: THRIFTMASTER PRODUCTS CORP.**
**1008 N. Plum St., Lancaster, Pa.**



Built to order

**The spindles** in this new drilling head can be adjusted individually within a 1½-in. radius of their center positions. They ride in a straight line or in staggered arrangement within the adjusting limit. The head is made to do a specified job and is available to order in this or other special multiple-spindle assembly.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10940

## Meet the Schedule!

Use PIONEER **Stanzoils**®

When employees hands are comfortable and properly protected by the *right* gloves for the job:

- there are fewer work stoppages
- injury claims decrease
- work goes faster, production increases

*—all at lower per hour glove cost to your plant!*

*N-36 medium weight all neoprene glove, 11" length. Snug curved fingers, non-slip grip surface afford almost bare-hand dexterity.*

Long-wearing liquid-tight neoprene Stanzoil industrial gloves resist damage from acids, oils, solvents, caustics. 32 styles, weights, sizes, colors. New PIONEER catalog shows you *at a glance* how to select the most efficient and economical gloves for each operation. It pays you to write for your copy today.

*Industrial Products Division*

**The PIONEER Rubber Co.**
235 Tiffin • Willard, Ohio

Quality Gloves for Over 30 Years

If you write maker identify as IEN - 10941

## THE ONLY SAFETY SWITCH IN SPECIAL INDUSTRY ENCLOSURE!

NOW- NEMA Type XII

• This new heavy duty switch, built to NEMA XII specifications, is "tailor-made" for applications requiring protection from dirt, dust, oil and coolant.

*Write for Bulletin SD-5. Address Square D Company, 6060 Rivard Street, Detroit 11, Michigan*

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS

**SQUARE D COMPANY**

If you write maker identify as IEN - 10942

## MAINTENANCE TIPS FOR YOU

in every issue of the

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**On-the-job reports** proving neoprene's superiority in the field.

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Better Things for Better Living ...through Chemistry

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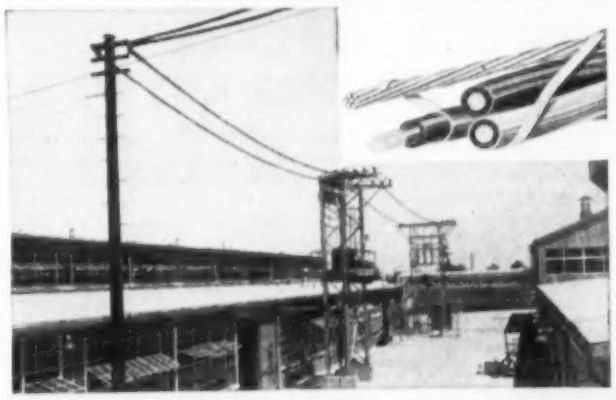
**NEOPRENE**

*The rubber made by Du Pont since 1932*

If you write maker identify as IEN - 10943



## Okonite Self-Supporting cables for economy, safety, improved operation

4,000 feet of Okolite-Okoprene Self-Supporting cable were installed in this modern glass works. A simple line tap, permitted by Okonite's Dualay construction, serves the 2300/440 volt steel platform substation.

Outdoors or indoors, wherever circuits can be supported overhead by beams, trusses, towers, poles or existing buildings, Okolite-Okoprene Self-Supporting cables provide a neat, dependable and economical method of power transmission. They provide greater safety and better voltage regulation. For detailed information write for Bulletin IE-1058. The Okonite Company, Passaic, N. J.

**OKONITE** insulated cables

If you write maker identify as IEN - 10944

# Profit with Eastman

## STRAIN RELIEVERS

*They Pay For Themselves...*

**Increase service, satisfaction and sales appeal of your products.**

- Increase service and safety of cords; reduce short circuit hazards.
- Positive grip prevents pulling wires from terminals; "the harder you pull—the tighter it grips!"
- Replaceable guards, couplings, cut extension cord repair time on portable shop tools.

Add to sales appeal and value of your finished products, portable tools, appliances, etc.

Eastman's original patents on Strain Relievers dated back as far as 1922! Our 31 years of experience is your guarantee of quality, correct design and satisfactory performance.

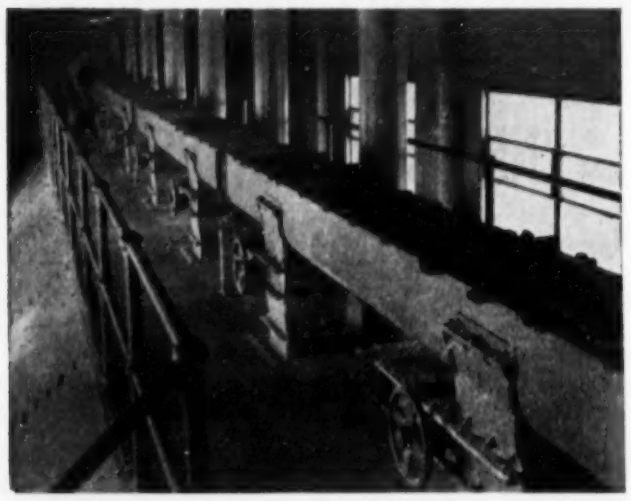
"Safeguarding Industry's Lifelines of Mobile Power"

**EASTMAN MANUFACTURING CO.**
*Since 1914*
Dept. IEN-10, Manitowoc, Wisconsin

**Eastman** *first in the field*
**HYDRAULIC HOSE ASSEMBLIES**

Write for Bulletin SR. Complete listing of all sizes, types.

If you write maker identify as IEN - 10945



**SPIRAL CONVEYORS**

Used for feeding and handling a wide variety of materials. Makes a compact installation if you want to conserve space—no return strand. Can be made dust tight. Fell free to call upon us for consultation. Send for Catalog No. 803-B.

**THE JEFFREY MANUFACTURING CO.**
Columbus 16, Ohio

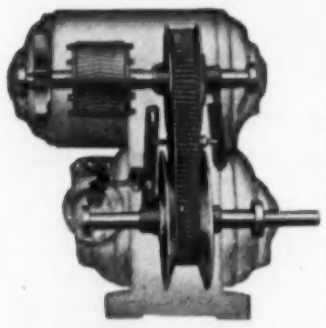
IF IT'S MINED, PROCESSED OR MOVED ...IT'S A JOB FOR JEFFREY!

*sales offices and distributors in principal cities*

If you write maker identify as IEN - 10946

# POWER COSTS CUT 15% MAINTENANCE CUT 75%

*Modernization of our multiple spindle drilling machine with a Speed-Trol drive, reports Mr. William L. Thomas, Plant Engineer of Utica Drop Forge & Tool Corp. of Utica, N. Y., enables us, for the first time, to utilize the full productive capacity of this machine. Power costs were cut 15%, maintenance was reduced 75%. We are able to adjust speeds quickly and accurately to correct drilling requirements with Sterling's fingertip control of speed.*



**STERLING SPEED-TROL**

**OUTSTANDING FEATURES:**
Infinite speeds—positive speed regulation—fingertip control—large indicator—positive pulleys—no springs—belt tension in proportion to load—protected—streamlined—Herringbone Rotor—through ventilation—versatile mounting—NEMA dimensions—shock absorbing—quiet operation—rugged—compact—dependable—long life.

**20-page illustrated catalog...** Sterling Speed-Trol, Slo-Speed, Klosd and Klosd-Tite Electric Power Drives. Write for catalog No. 1-C-422.

**STERLING ELECTRIC MOTORS**

Plants: New York City 51; Chicago, Ill.; Los Angeles 22; Hamilton, Canada; Santiago, Chile • Offices and distributors in all principal cities.

# USEFUL NEWS NOTES INFORMATION

If you write maker identify as IEN - 10947

**BEARINGS . . Maintenance information published in series of data bulletins issued at intervals**

Anti-Friction Bearing Distributors Association
1902 Euclid Ave., Cleveland 15, Ohio

**Answers to problems** in anti-friction bearing service are published in the Association's "Bearing Maintenance Report", a 4-page bulletin issued at intervals. Troubles and remedies, design points, installation instructions, lubrication, are typical. Your name will be added to the list upon request.

If you write maker identify as IEN - 10948

**BENDING . . Equipment and methods described in textbook on bending pipe and tube**

Industrial Press
148 Lafayette St., Dept. IEN, New York 13, N. Y.

**Methods of bending** is introductory chapter in new 184-page book, "Pipe and Tube Bending", list price $5. This is followed by information on lengths and minimum radii, use of fillers and mandrels, and detailed descriptions on specific methods such as compression, draw, press, roll, wrinkle, hot, production bending. One chapter covers bending operations in the field.

If you write maker identify as IEN - 10949

**DRIVES . . Chart reads distance between belt center of a blower and its driving motor**

Korfund Company
48-35 32nd Place, Long Island City 1, N. Y.

**Letter-size** Belt Center Distance Calculator enables you to pick off on a chart the distance between belt centers of a blower and its driving motor, knowing the vertical and horizontal distances. Or you can use it to find the horizontal distance if the other two distances are known. The back of the chart shows standard blower arrangements and designations. Available at no charge.

If you write maker identify as IEN - 10950

**FILING . . Nine application suggestions in bulletin on adjustable reciprocating handpiece**

Engis Equipment Co.
429-33 S. Dearborn St., Chicago 5, Ill.

**Pictures** and condensed captions in 4-page "Proven Techniques" bulletin shows the scope of application for the company's Di-Profiler, a flexible-shaft handpiece with a stroke adjustable from zero to ¼ in. and speed adjustable from zero to 100 strokes per second. Grinding, filing, scraping, honing, lapping, polishing are typical operations.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10951

# REDUCE COSTS ON "SMALL-WORK" GRINDING & FINISHING JOBS with

## Foredom FLEXIBLE SHAFT MACHINES

- **FEATHER-WEIGHT** finger-tip-controlled handpiece (pencil size or larger) which eliminates operator fatigue.
- **CHOICE OF 5 HANDPIECE TYPES** (all instantly interchangeable). You fit the handpiece to the job at hand.
- **EXTRA GOOD FLEXING QUALITIES** in the flexible shaft assembly for effortless maneuverability.
- **LONGER MOTOR LIFE** because motor is not dwarfed to fit the hand.
- **HIGH SPEED** (14,000 RPM) which does not drop precipitately under load.
- **SILENCER-EQUIPPED** flexible shaft for vibration-free performance.
- **BENCH OR HANG UP MODELS FOR HEAVY OR LIGHT DUTY**

*Over 100,000 FOREDOMS now in use!*

Also flexible shaft tools attachable to your own drill press or motor

Use Foredoms to GRIND, POLISH, DRILL, ROUT, CARVE, MILL, SAW, SLOT, CLEAN, SAND, ETCH, ENGRAVE, etc., etc.

*Write for Catalog 4166*

**FOREDOM Electric Co., Dept. 4166, 27 Park Place, N. Y. 7**

If you write maker identify as IEN - 10952

**FOR BETTER HANDLING**

Look under "Trucks" or "Casters" in your classified phone directory for your nearest Nutting representative. Or write direct for Junior Catalog 52G.

SINCE 1891 **Nutting TRUCK & CASTER CO.**
2014 Division St. Faribault, Minn.

*Export Sales Representative School International Inc.*
*4237 North Lincoln Avenue • Chicago 18, Ill.*

If you write maker identify as IEN - 10953

# use your ¼" drill...

WITH RCS Korner King PLUS RCS Super Speed BITS

# drill up to 2 9/16" diameter hole IN THE HARDEST WOOD!

Simply snap the KORNER KING right angle attachment on your present heavy duty drill (¼" or larger). LOW side gives you 80% more power at half rpm . . . HIGH side doubles your drill's rpm. Drill holes up to 2-9/16 inch in diameter in the most inaccessible spots—between joists and studs, in tight corners, etc. All with 100% safety because an exclusive RCS Torque Release eliminates dangerous torque reaction if drill jams . . . drive shaft continues turning if load or obstruction ever locks driven shaft or bit.

RCS SUPER SPEED BITS range in size from ⅝" to 2-9/16" diameters. Their new, simple design requires less torque, needs less thrust. Fast acting, cool running and long lasting, RCS SUPER SPEED BITS assure economical operation—as well as low initial cost. They're easy to sharpen, inexpensive to replace.

Extra extensions are available for these new RCS SUPER SPEED BITS which permit drilling holes, in perfect alignment, to just about any length.

If you use a drill, learn more about how RCS KORNER KING and RCS SUPER SPEED BITS can increase its efficiency and versatility.

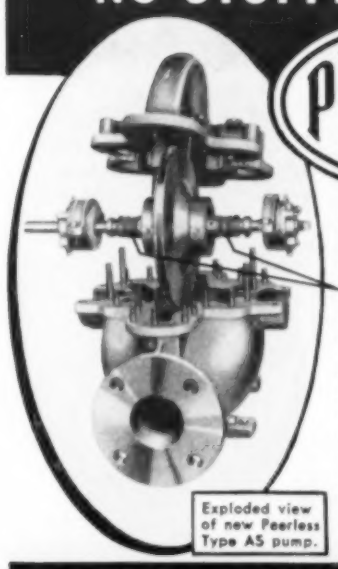
***WRITE DEPT. IE-10 TODAY FOR COMPLETE DETAILS***

**R.C.S. TOOL SALES CORPORATION**
JOLIET, ILLINOIS, U. S. A.

If you write maker identify as IEN - 10955

THIS NEW HORIZONTAL SPLIT-CASE ALL PURPOSE PUMP HAS NO STUFFING BOX!

PEERLESS PUMPS



Exploded view of new Peerless Type AS pump.

**New Peerless Type AS Pump is designed around mechanical shaft seals**

Write today for Peerless Pump Bulletin No. B-1350. Profusely illustrated with pump views, sectional and cutaway pump drawings, elevations and dimensional data. Mechanical shaft seals prevent water leakage, save space, cut maintenance costs, provide extra quality without a premium in price.

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION

Los Angeles 31, California and Indianapolis 8, Indiana
Offices: New York, Chicago, St. Louis, Atlanta; Dallas, Plainview and Lubbock, Texas; Fresno, Los Angeles; Phoenix; Albuquerque, N. M.; Tulsa

If you write maker identify as IEN - 10956

Nothing You Build Into Your Product *Can Count for More!*

Everyone Can Count on VEEDER ROOT

This compact Reset Counter is a standard built-in part of many makes of business machines, cameras, coin machines, compressors, die casting machines, hay balers, laundry equipment, plastic molding machines, punch presses, shoe machines . . . and what have *you?* It counts turns, strokes, pieces or other units of performance and output . . . supplying facts-in-figures that help toward closer *Count*rol. Find out how *your* product can give your customers a *new usefulness*, with these or other Veeder-Root Counters for mechanical or electrical operation. Write:

VEEDER-ROOT INCORPORATED
HARTFORD 2, CONNECTICUT
Chicago 6, Ill. • New York 19, N. Y. • Greenville, S. C.
Montreal 2, Canada • Dundee, Scotland
Offices and Agents in Principal Cities

"The Name that Counts"

# USEFUL INFORMATION

*(Continued)*

If you write maker identify as IEN - 10958

**ELECTRICITY . . Textbook of 482 pages covers theory and equipment for engineer and student**

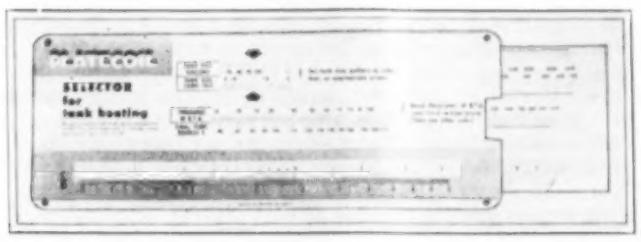
Industrial Press
148 Lafayette St., New York 13, N. Y.

**"Applied Electricity"** by Cotton was published originally in England. New Second Edition now is being published in this country at a list of $4.50. The book covers magnetism, electrostatics, electromagnetism, motors, generators, transformers, electronics, illumination, meters, circle diagrams.

If you write maker identify as IEN - 10959

**HEATING . . Cardboard slide selector for size of Platecoil element to heat a given tank**

Trantner Mfg. Inc.
701-5 E. Hazel St., Lansing 4, Mich.




**Tank size** in gallons or cubic feet is first variable that is set at a window in the face of new Platecoil Selector. Thousands of BTU are read next at a second window against final temperature. This information is transferred to the back to determine number and type of Platecoil heating elements required. These elements are two embossed metal sheets, welded.

If you write maker identify as IEN - 10960

**ELECTRONIC TUBES . . Picture book shows structural details of tubes for instruction use**

Radio Corp. of America
413-17 S. 5th St., Harrison, N. J.

**"Tube Picture Book"** is new 16-page publication intended as a visual instruction aid. It uses cut-away illustrations to show structural details of glass, metal, minature, subminiature tubes, thyratron, high-voltage rectifier, power triodes, television picture tubes and camera tube, multiplier phototube, and the 5734 transducer. List price is 25 cents.

If you write maker identify as IEN - 10961

**GOVERNMENT . . Reference manual of United States Government departments and functions**

Superintendent of Documents
Government Printing Office, Washington 25, D. C.

**Revised** 1953-54 edition of the "United States Government Organization Manual" is a 734-page book published by the National Archives and Records Service of the General Services Administration. It describes executive, legislative and judicial branches and agencies as to organization, function, scope. List price is $1. Please send your request direct to the Superintendent of Documents at the address above.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10962

YEAR 'ROUND SAFETY

McDonald SAFE-T-HAT with WINTER ACCESSORIES

MAKE the cold winter months SAFE against head hazards with the warm, snug ZERO HOOD that seals out icy blasts.

ZERO HOOD—medium weight (shown at left) covers head and ears. Sizes, medium and large.

Also ZERO HOOD with full head, ear and neck protection (not shown). Medium or heavy weight in medium and large sizes. *Write for bulletin & prices.*

B. F. McDONALD CO.
Manufacturers & Distributors of Industrial Safety Equipment
5721 WEST 96TH ST., LOS ANGELES 45, CALIF.
Other Offices in San Francisco & Houston

If you write maker identify as IEN - 10963

INDUSTRIAL INKS To Mark Anything!

Whatever the substance, Phillips has an ink to mark it permanently and legibly—or can make one. Marking experts insist on "Clear Print" Wood Block Stamp Pads and Opaque Inks. They get clear, sharp, fast-drying impressions. Also inks for brush, pen, stencil or machine application available in a variety of colors and quantity containers.

★ Quick Laboratory Service On Your Problem Markings

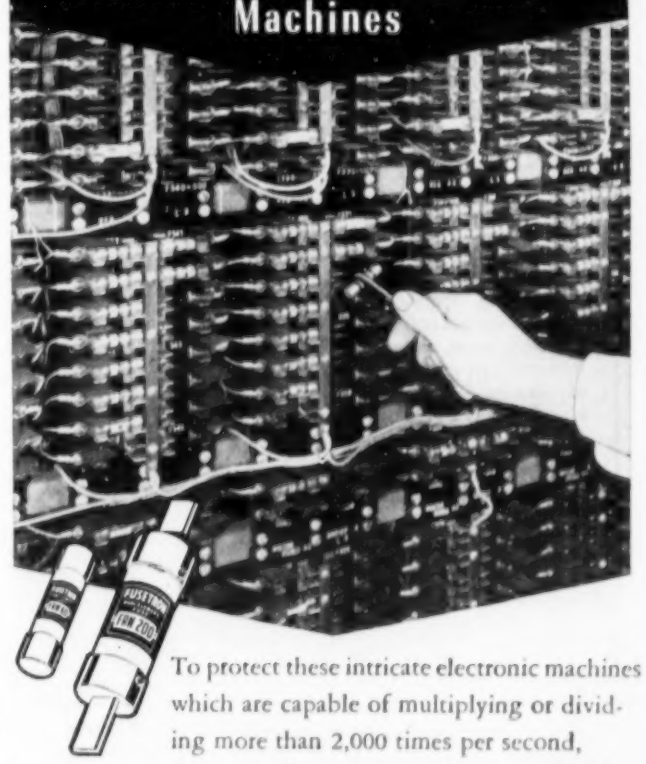
★ To Permanently Mark . . . Metals, Plastics, Glass, Wood, Paper, Leather, Ceramics—glazed, varnished or lacquered surfaces and virtually every other known material.

L. A. PHILLIPS, President
PHILLIPS PROCESS CO. INC.
192 MILL STREET
ROCHESTER 14, N. Y.

CARBON PAPER · PROTYPE TYPEWRITER RIBBON · CLEAR-PRINT WOOD STAMP PADS

If you write maker identify as IEN - 10964

More than 400 FUSETRON and BUSS Fuses are used in IBM's Electronic Data Processing Machines



To protect these intricate electronic machines which are capable of multiplying or dividing more than 2,000 times per second, IBM uses from 400 to 500 FUSETRON and BUSS fuses. Where surge currents might cause ordinary fuses to blow needlessly, FUSETRON dual-element fuses with long time lag are used. Where even a short-lived surge might cause damage to the delicate parts, fast-opening BUSS single-element fuses protect.

*You Can Have* the Same BUSS Dependability and Accuracy in Your Plant . . .

Industrial and commercial sizes of FUSETRON dual-element fuses are made with the same precision that is demanded by this ultra-modern IBM equipment. They can be used throughout your entire electrical system to give a degree of protection obtained with no other device . . . and at a surprisingly low cost.

FUSETRON
TRUSTWORTHY NAMES IN ELECTRICAL PROTECTION
BUSS

*For more information write*

BUSSMANN MFG. CO., University at Jefferson, St. Louis 7, Mo. (Division of McGraw Electric Co.)

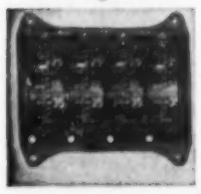
If you write maker identify as IEN - 10966

## means wasted fuel

The designing engineer, the mechanic and the pilot, all find Cambridge Exhaust Gas Analysers essential for developing, adjusting and operating internal combustion engines. These instruments make available continuous indication of air-fuel ratio of the mixture being supplied to the engine.

### exhaust gas tester

determines the completeness of combustion in one or all cylinders. This rugged and accurate instrument is conveniently portable for field and shop use.



### aero mixture indicator

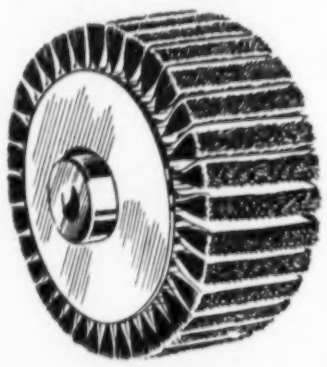
is a flight instrument for installation in single or multi-engine planes. Its use makes possible greater pay load, cruising radius and safety.

*Send for literature*

**CAMBRIDGE INSTRUMENT CO., Inc.**
**3710 GRAND CENTRAL TERMINAL, NEW YORK 17, N. Y.**
*Pioneer Manufacturers of Precision Instruments*

If you write maker identify as IEN - 10967

## THIS MAY BE THE ANSWER TO YOUR FINISHING PROBLEM!



We say this because the Vonnegut Brush-Backed Polishing Head is designed especially for polishing curved and formed surfaces . . . and because it is an excellent deburring tool. It is used directly on die casting metals, aluminum, brass, bronze and steel—but it is equally efficient for removing bubbles and other blemishes and feathering out such areas on enameled or painted surfaces. Its basic versatility is enhanced by a wide choice in grade and grit of abrasive loadings. It's a unique device available in two models, for portable tools or fixed spindle operation. Write for the Vonnegut Polishing Head bulletins.

**Grinding and Polishing Machinery Corp.**
SUCCESSORS TO VONNEGUT MOULDER CORPORATION
2530-D WINTHROP AVE., INDIANAPOLIS 5, U. S. A.

If you write maker identify as IEN - 10968

## Geared to Industry's Production Demands Since 1887

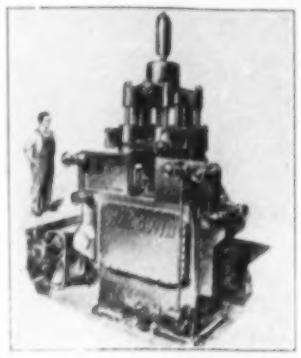
Offering the most complete line of washers available today . . . all types and sizes, all materials, all finishes. More than 25,000 sets of dies. Let us quote on your requirements.

**WROUGHT WASHER MANUFACTURING CO.**
*The World's Largest Producer of Washers*
2207 S. BAY ST., MILWAUKEE 7, WIS.

If you write maker identify as IEN - 10969

## PRESS . . Motor driven crank type, hydraulic control, to compress powders

**Source: BALDWIN-LIMA-HAMILTON CORP.**
**Paschall Post Office, Philadelphia 42, Pa.**



**Stops if not lubricated**

**Model C** is a new mechanical four-column crank type press equipped with a flywheel, pneumatic clutch and brake and driven by a 20-hp. motor. The motor and the press mechanism are enclosed design to prevent entrance of abrasive materials in connection with compacting powdered metals, ceramics and other powdered materials, as in the manufacture of grinding wheels. Pressure control is by means of a hydraulic head in which a ram supplies opposing pressure to the upper punch so the press cannot be overloaded.

**A floating die holder** and core rod float independently of each other and are held in normal top position by pneumatic cylinders. Positive stops, adjusted by handwheels, control the float distance. Depth of fill and stroke of the bottom punch are adjusted by additional handwheels. Relative position of the core rod to the die is also adjustable to control the fill when making counter-bored parts. An air operated cam control shuttle moves under a stationary supply hopper to feed materials into the die.

**A control panel** is supplied so the press can be set to operate continuously, to stop at any predetermined point in its cycle, to dwell for intervals to 15 seconds and start automatically, or to stop at a predetermined point in the cycle and remain stationary until the operator presses a start button. There is also a control for "inching."

**Rated pressure** is 100 ton. Die float is adjustable to 2 inches. Maximum capacity of the adjustable stops for the floating die holder and for the floating core rod is 50 ton each. Ejecting capacity is 30 ton. Depth of fill, ejecting stroke and maximum core rod float are all adjustable to 6 inches. The die opening diameter is also maximum at 6 inches. Outside dimension of the die can be 10-in. round or 5 by 10-in. rectangular. Maximum diameter of the compact is 4 in. and maximum diameter of the core rod is 3½ inches. The press operates at 4 to 24 strokes per min. by setting its variable speed drive. Overall dimensions are 13 ft. in width by 5 ft. from front to back and 16 ft. in height. Weight is 44,000 pounds.

If you write maker identify as IEN - 10970

## SEALING . . Plastic material fills imperfections in metal surface

**Source: WOODHILL CHEMICAL CO.**
**1389-93 E. 33rd St., Cleveland 14, Ohio**

**Packaged in cans**
**6 oz. to 3 lb.**

**Duro Solderweld** No. 53 is a new composition of metallic filler and plastic binder for application with a spatula or putty knife to fill imperfections in castings, patterns, equipment. The material is applied as it comes from its container. It dries on exposure to the air in about 2 min. at temperature of 70 deg. or more. It can be ground, filed or sanded down to a level feather edge after it has dried. No particular skill is required. The dry material is flexible. It will not harden or congeal in the container.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

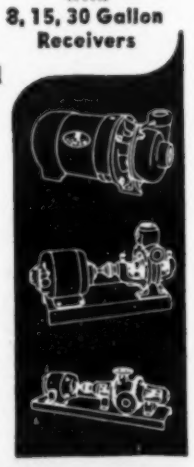
If you write maker identify as IEN - 10971

## APCO *Packaged* CONDENSATION RETURN UNITS

for the SMALL LOW PRESSURE JOBS

10 to 40 lbs. with 8, 15, 30 Gallon Receivers

**Packaged Duplex Condensation Return Unit with No. 4 Series Apco Pumps.**



Start saving valuable heat units with APCO Square Tank Units. Built to meet demand for a smaller unit with the superb performance of our larger units. Remember, the Pumps are Apcos. No Vapor Binding — Special Provision for Expansion and Contraction — No Frictional Wear within pump. Thus, ECONOMY.

*Write for Bulletin 113-ST*

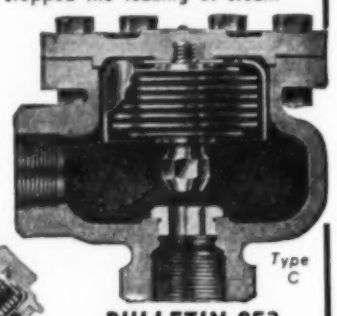
DISTRIBUTORS IN PRINCIPAL CITIES

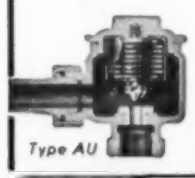
**AURORA** *Always* PUMPS — **AURORA PUMP COMPANY**
SUBSIDIARY OF THE NEW YORK AIR BRAKE CO.
52 LOUCKS STREET • AURORA, ILLINOIS

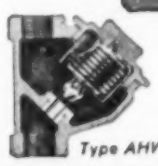
If you write maker identify as IEN - 10972

## NICHOLSON TRAPS PROVE BEST FOR VARYING CONDENSATE LOADS

An Eastern processor's tests proved that Nicholson thermostatic traps, due to their 2 to 6 times average drainage capacity, were best able to stop the back-up of condensate during alternating warm-up periods. At the same time, their positive intermittent action stopped the leaking of steam during the later lesser normal loads. See why leading plants are increasingly standardizing on Nicholsons for faster heat transfer. 5 types: size ¼" to 2"; press. to 250 lbs.




***BULLETIN 853***
159 Oregon St.
Wilkes-Barre, Pa.

**W. H. NICHOLSON & CO.**
**TRAPS · VALVES · FLOATS**

If you write maker identify as IEN - 10973

## NEW FREE BULLETIN

**shows how the *Arcair** TORCH GOUGES, GROOVES, CUTS and BEVELS all metals at lowest cost!**

Here are facts and photographs that demonstrate the time and money-saving performance of the ARCAIR TORCH in metal fabricating plants, foundries and for many kinds of maintenance work. ARCAIR uses only electric arc and compressed air, operates at far lower hourly cost than other processes.

***Write today for Free Bulletin and name of nearest dealer.***

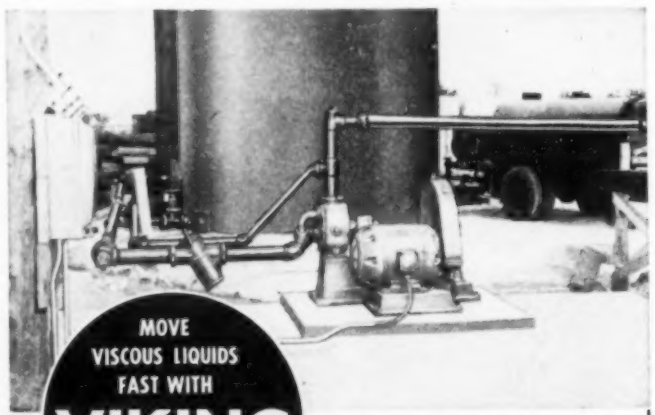
* Trademark

***Arcair* COMPANY**

**EASTERN DIVISION**
423 So. Mt. Pleasant Ave.
Lancaster, Ohio

**WESTERN DIVISION**
P. O. Box 4107
Bremerton, Wash.

If you write maker identify as IEN - 10974



MOVE VISCOUS LIQUIDS FAST WITH **VIKING** JACKETED PUMPS

Two types of asphalt (quick-set and slow-set are being pumped with this model Q137 Viking unit. Delivery is from tank cars to storage and from storage to truck tanks at the State Asphalt Distributing Co's. Milwaukee plant. Plant built by Stone Construction Co.

Like the State Asphalt Distributing Company, you too, can quickly unload tank cars, fill truck tanks, transfer viscous materials in processing applications with Viking Jacketed Pumps. They report highly satisfactory operation in every way.

VIKING AN HONORED NAME IN PUMPING

*Get the complete facts on the all-jacketed Viking pump line. Sizes from 90 to 450 gpm. Mounting arrangements to suit. For additional information, ask for free bulletin 901F today.*

See Our Catalog In SWEETS

**VIKING PUMP COMPANY**
CEDAR FALLS, IOWA

*If you write maker identify as* IEN - 10975

## MACHINE LOADING, SCHEDULING DISPATCHING AND JOB ASSIGNMENT

**Bulletin outlining procedure widely used for these cost-cutting results now available:**

**Visual Scheduling** . . . a glance at Board shows work ahead for each machine or man.

**Order Sequence** . . . quickly indicated by arrangement of tickets representing orders.

**Schedule Changes** . . . easily specified by rearranging tickets in revised sequence.

**No Delay Between Planning and Dispatching** . . . no lists or records to write.

**Operation According to Plan Assured.**

**Readily Adaptable** . . . to production, assembly, maintenance, engineering and work of every variety, using work orders, time tickets, move tickets, tabulating cards, etc., and McCaskey Machine Control Boards.

*Write today for your copy of illustrated Bulletin A-630 IEN*

**The McCaskey Register Company, Alliance, Ohio**

**McCaskey INDUSTRIAL CONTROLS**

**PRODUCTION · INVENTORY · TOOLS · COSTS · MAINTENANCE**

THE McCASKEY REGISTER CO.
ALLIANCE, OHIO

McCaskey Systems, Ltd., Galt, Canada
The McCaskey Register Co., Watford, England

*If you write maker identify as* IEN - 10976

## Presto . . . it's UP!

## 25 ft. "UP-RIGHT" SCAFFOLD-ON-WHEELS

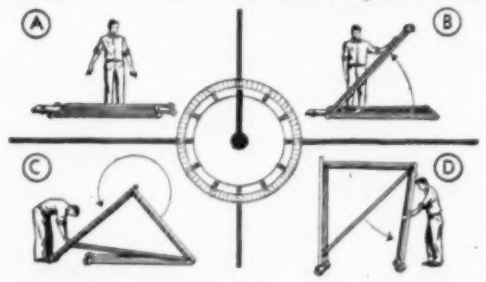
***Set up in only 5 minutes!***

As if by magic, an aluminum alloy tower of any height desired is ready in minutes! Individual scaffold sections are set one on top of the other. Sections lock into place instantly. The tower rolls down aisles . . . straddles machinery.

**HERE'S THE SECRET! . . .**

**Patented ONE-PIECE SECTIONS**

Each one-piece section is unfolded by one man in less than a minute! No tools, wing nuts or bolts.




*WRITE FOR DESCRIPTIVE BULLETIN*

**"UP-RIGHT" SCAFFOLDS**

DEPARTMENT 142 • 1013 PARDEE STREET • BERKELEY, CALIFORNIA
Factories: Berkeley, Calif. and Teterboro, N. J.
*Offices in all principal cities*

# USEFUL INFORMATION

*(Continued)*

*If you write maker identify as* IEN - 10978

**HEATING . . What to look for in selecting a portable space heater**

Herman Nelson Division
1822-26 Third Ave., Moline, Ill.

**Heat output,** portability and safety are three major factors described in new 40-page "Guide to the Selection and Use of Portable Space Heaters". Particular attention is paid to safety in the use of these units for spot heating, equipment preheating and other temporary or emergency service.

*If you write maker identify as* IEN - 10979

**MANAGEMENT . . 50th Anniversary Book describes company's growth and present activities**

Clark Equipment Co.
Battle Creek 49, Mich.

**Power trucks,** transmissions, axles, drives are among the products made by the company, now celebrating its 50th anniversary. It has issued a 76-page book which shows these products and steps in their manufacture, together with a description of its growth and its employee activities.

*If you write maker identify as* IEN - 10980

**METALS . . Cardboard slide calculator for weights of sheet, bar and plate in several metals**

Continental Copper & Steel Industries Inc.
345 Madison Ave., Dept. IEN, New York 17, N. Y.

**Steel,** stainless steel, nickel, Monel, Inconel, aluminum, Hastelloy, copper and titanium are within the scope of new Alloy and Steel Weight Calculator. Width is set under thickness or size over bar shape to read weight over length computed as steel. A set of factors is provided for other metals. Reverse side of the 10¼ by 4½-in. calculator summarizes ASME pressure-vessel code.

*If you write maker identify as* IEN - 10981

**PACKAGING . . With aluminum foil is detailed in revised 68-page instruction manual**

Reynolds Metals Co.
2502 S. Third St., Louisville 1, Ky.

**New larger edition** is announced for the company's "Aluminum Foil Packaging" manual, available to packaging engineers and technical men on letterhead request. List price otherwise is $1. The manual covers aluminum-foil materials, types of package, specific requirement and how they are met, drawings on assembly methods.

*If you write maker identify as* IEN - 10982

**PLASTICS . . How to figure material cost of molded nylon parts by a rule-of-thumb method**

Nylon Molded Products Corp.
853 Nylon Ave., Garrettsville, Ohio

**If your interest** lies in part design and material specification you might like to secure a copy of new 4-page bulletin "How to Calculate Material Cost for a Nylon Part". It gives a simple three-step method based on volume, includes a number of suggestions including one on importance of design to price.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 10983

## PAGE FENCE - Since 1883

• AMERICA'S FIRST WIRE FENCE •

Don't **blame** yourself for costly loss or property damage caused by lack of property protection. Install sturdy Page Chain Link Fence. It has been providing security against possible disruption of business, vandalism, or many other losses or injuries for more than 60 years. Page Fence is available in heavily galvanized Copper-Bearing Steel, Stainless Steel or corrosion-resisting Aluminum. NOW is the time to consult the skilled Page Fence erecting firm nearest you. For name and address and helpful illustrated fence data . . .

***Write** to PAGE FENCE ASSOCIATION in Monessen, Pa., Atlanta, Bridgeport, Chicago, Denver, Detroit, Los Angeles, Philadelphia, New York or San Francisco.*

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.

*If you write maker identify as* IEN - 10984

## You Can Take the Word of 50,000 Firms

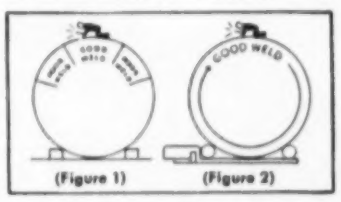
*That SPEED SWEEP Floor Brushes Sweep Cleaner, Faster and Outlast Ordinary Brushes*

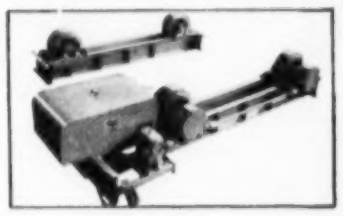
**U**nique in design and construction, Speed Sweep so far outperforms and outlasts other floor brushes that over half of the nation's top rated firms use Speed Sweep under widely diversified sweeping conditions. We know Speed Sweep can do a better job for you, too. In fact, we guarantee it. We invite a trial order on that basis. Write for complete facts, including styles, sizes and prices today.

**MILWAUKEE DUSTLESS BRUSH CO.**
530 N. 22 STREET, MILWAUKEE 3, WISCONSIN

*If you write maker identify as* IEN - 10985

## How Worthington Turning Rolls insure BETTER WELDS



Designed for use in welding cylindrical vessels of any size, Worthington Turning Rolls will insure the best possible weld while lowering costs and increasing footage up to 50%.

The above sketches show how. Unless work is turned continuously, good downhand welding is obtainable only in a small area (Fig. 1). With a Worthington Turning Roll, downhand welding is assured for the complete circumferential seam (either by manual or automatic welding) (Fig. 2).

Write for Bulletin 228-A, Worthington Corporation, Plainfield, New Jersey.

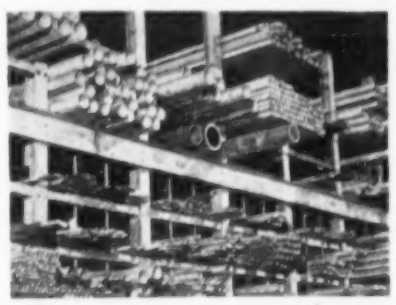
Y.2.2

**WORTHINGTON**

Welding Positioners—Turning Rolls

*If you write maker identify as* IEN - 10986

## FRASSE for Stainless Pipe and Tubing



If you use tubular stainless in your product or pipeline — you'll find it faster, handier to work from Frasse warehouse stocks. With plenty of sizes to choose from — Frasse is a safe bet to have *the* size required by your specifications. Complete Frasse stocks of tubular stainless include:

- **PIPE** — seamless, ⅛" to 8" PS, schedules 40 & 80
  welded, ⅛" to 6" PS, schedules 5, 10 & 40
- **TUBE** — seamless, ⅛" to 8⅝" O.D., .022" to .500" wall
  welded, ⅛" to 6⅝" O.D., .014" to .280" wall

Choose the size you need — then let fast delivery from your nearby Frasse warehouse help you get the job done quicker. Broad size selection, speedy availability and practical engineering assistance make Frasse *the* source for tubular stainless. When your layout calls for stainless pipe or tubing—call Frasse.

*Call FRASSE 1st*

FOR STAINLESS TUBING PIPE • VALVES FITTINGS

**Peter A. FRASSE and Co., Inc.**

17 Grand Street, New York 13, N. Y.

Philadelphia • Buffalo • Syracuse • Hartford

If you write maker identify as IEN - 10987

# JOHNSON Graphited BEARINGS

**FOR SPECIAL USES**

Johnson Graphited Sleeve Bearings were developed primarily for applications where lubrication is difficult or likely to be neglected. Other important uses are: where the shaft speed is too slow or the temperature too low to sustain an oil film; where high operating temperatures may burn out oils and greases; where lubricants might damage goods or foods in process; where dripping oil cannot be tolerated; and certain underwater applications. Johnson Graphited Bearings are available in three types: with serrated grooves, graphite plugs, and graphite-filled oil grooves. The serrated type is a stock item in over 200 sizes, available through Johnson Distributors. Write for information.

JOHNSON BRONZE COMPANY
476 South Mill Street · New Castle, Pennsylvania

**JOHNSON BEARINGS** Sleeve-Type

*Sleeve Bearing Headquarters Since 1901*

If you write maker identify as IEN - 10988

**Get absolutely**
# OIL-FREE AIR
**with GAST rotary OIL-LESS AIR PUMPS**

Below — Oil-less 3040, end plate removed. From 17 to 24 C.F.M.

Oil-less Model 1550 — 8 to 10.5 C.F.M.

See our CATALOG in SWEET'S FILE for PRODUCT DESIGNERS

Write for new Data Sheet on Oil-less Pumps, showing three types and rating tables.

**THEY RUN ENTIRELY** *without oil* in pumping chamber. Carbon rotor vanes lubricate themselves — through thousands of hours' use. Ball bearings grease-sealed for life. You can forget oiling problems!

**DELIVERS ABSOLUTELY OIL-FREE AIR.** Your product or material can't be contaminated with oil droplets.

**FOR BOTH VACUUM AND PRESSURE,** Gast Oil-less Models are precision-built for dependable high performance. Sizes from 3.5 to 24 C.F.M., 3 to 10 lbs. pressure, 10 to 20 in. vacuum.

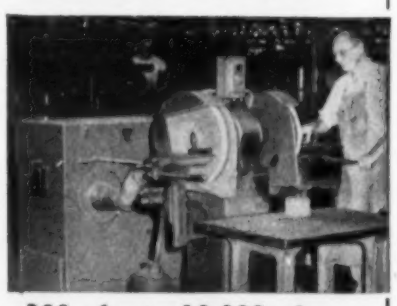
*Original Equipment Manufacturers for Over 25 Years*

**GAST ROTARY** AIR MOTORS · COMPRESSORS · VACUUM PUMPS
(TO THREE H.P.) (TO 30 LBS.) (TO 28 INCHES)
GAST MANUFACTURING CORP., 119 Hinkley St., Benton Harbor, Mich.

If you write maker identify as IEN - 10989

# STOP DUST
**INSTANTLY with DUSTKOP**

DUSTKOP 1400 cfm.



DUSTKOP 3600 cfm.

**300 cfm to 10,000 cfm per unit (22 models)**

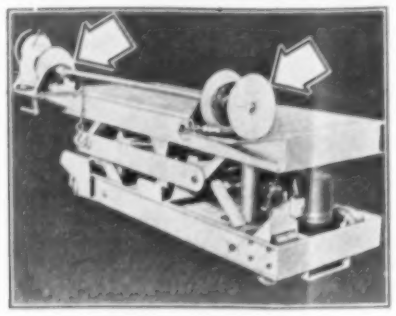
Standard pre-tested, available from stock. Ask for catalog 605-2. Describe dust problem for recommendation by return mail. No obligation.

**AGET-DETROIT CO.**
401 Main Street
ANN ARBOR, MICH.

If you write maker identify as IEN - 10990

## ELEVATOR . . Hand winch attachment for use on hydraulic elevating table

Source: RAYMOND CORPORATION
35108 Madison St., Greene, N. Y.



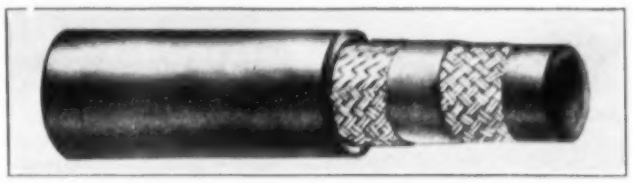
Known as die winch

**New hand winch** makes it possible to employ the company's line of wheel mounted hydraulic elevating tables to handle heavy tools into and out of machines and storage as well as to lift sheet stock into correct position to feed a machine. The winch employs a 96 to 1 gear reduction that enables an operator to move dies weighing as much as 5 ton. The assembly includes two reels, each holding 15 ft. of hook equipped wire rope. The operating crank is at one end. The reels mount on brackets at one side of the standard table.

If you write maker identify as IEN - 10991

## HOSE . . Oil resistant rubber for general duty, rayon cord reinforced

Source: HAMILTON RUBBER MFG. CO.
P. O. Box 361-A, Trenton 3, N. J.



Sample and prices upon request

**Vari-Purpose** is a new general duty rubber hose that will stand up in contact with oil, grease, gas, weak inorganic acids, spray solutions, acetylene, paints other than lacquer. Sizes range from ¼ to 1½ in. in inside diameter. Working pressure is to 300 lb. in the small sizes, to 125 lb. in the largest. Length is to specification, maximum at 500 feet.

**The oil resistant tube** is reinforced with 1, 2 or 3 braids of rayon cord. The cover is made of tough abrasion resistant and oil resistant rubber. It is inseparably bonded in place. Cover color is red or black.

If you write maker identify as IEN - 10992

## WELDING . . Canvas screen in portable metal frame for arc welders

Source: A. MAMAUX & SON
122 Blvd of Allies, Pittsburgh 22, Pa.

**List price about $48**

**The frame** in this new Style-101 welding screen measures 6 ft. in width by 5 ft. in height in central section. At each end is a 3-ft. wing, also 5 ft. in height, with hinge connections so it can be folded flat against the main section. The canvas can be removed for repair or replacement. It is held in place on the frame with curtain hooks and is treated to make it fireproof, waterproof and mildew proof.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 10993

*No More Rebound · Shock · Sting*
**Dead-Blow Means 30% More Driving Power**

**GAIN EFFICIENCY . . . SAFETY . . . ECONOMY**

"IMPAX" HAMMERS with specially designed shot-loaded head, strike **controlled** "stay-put" blows . . . their mighty impact cuts one blow out of three. Spark-proof surfaces eliminate fire and explosion hazards . . . non-chipping prevents worker injury from flying particles.

***For Over Ten Years Industry Has Specified "Nuplaflex Only"***
NUPLAFLEX TIPS **by actual performance records,** have reduced costs 50% to 90% . . . and more. They possess a toughness, resiliency and self-healing quality not available in other hammers. Comparative on-the-job tests prove NUPLAFLEX often outwear rawhide, rubber, babbitt, lead, copper, wood and ordinary plastic materials at least 20-30 to 1 (actual proof furnished on request).

***Make Your Own Test . . . You Will Be Amazed***
For complete information on NUPLA and IMPAX HAMMERS, also NUPLAFLEX TIPS write your dealer or Dept. 107

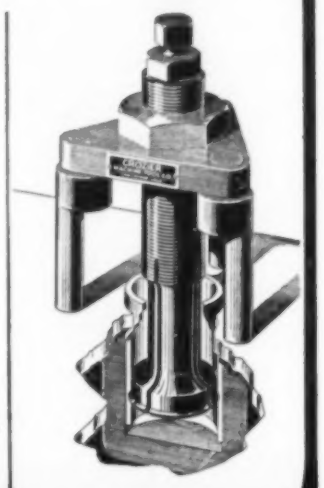
**NEW PLASTIC Corporation** 1026 North Sycamore, Los Angeles 38, California

If you write maker identify as IEN - 10994

# NEW EXTRACTOR
***removes bushings from blind holes***
***. . . cuts time 75 per cent***

The entirely new method of extracting bushings, bearings, sleeves, liners, etc. Eliminates necessity for machining, minimizes the hazard of injury to casings or excessive dismantling of equipment, handles holes from ½ to 2" — over 5 tons have been extracted with unit. Eliminates as much as 75 per cent of labor and time, slashes inventory.

For complete information write Department IEN-10.



**CROZIER** *Machine Tool Co.*
684 NO. PRAIRIE AVENUE, HAWTHORNE, CALIFORNIA

If you write maker identify as IEN - 10995

**IT TAKES TWO TO MAKE A BARGAIN**
**But Only ONE MACHINE To Make Two Bends**

Now you can make two bends at the same time in a piece already bent on different planes. The dies are adjustable to any centers within the height of the central die spindle. This feature also insures that both the top and bottom bends will be identical. The PEDRICK Benders are equipped with automatic relay controls for automatic duplicate production bending. Ideal for chair frames, cart handles, and a myriad of other applications.

*Write for descriptive folder.*
Prices as low as $1575.00

**PEDRICK TOOL & MACHINE CO.**
3640 North Lawrence St., Dept. 7, Phila. 40, Pa.

If you write maker identify as IEN - 10996

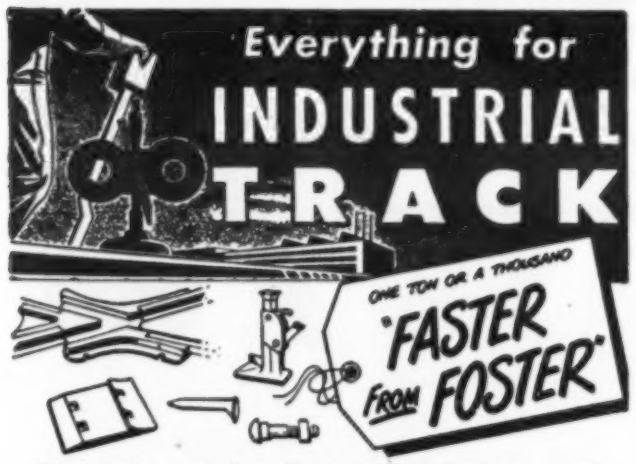
## PORTABLE STRAPPING KIT

Brainard's new UTILIKIT is lightweight, portable and complete—contains all the equipment you need for steel-strapping cartons, bundles, packages, etc. Equipped with a 300-foot coil of strapping in cardboard dispenser, 1000 strapping seals and three basic tools: stretcher, sealer and snips. All materials packed in steel carrying case; economically priced. Can be used by anyone after a few minutes instruction.

**Brainard** STEEL DIVISION SHARON STEEL CORPORATION

*For booklet on UTILIKIT write*
**BRAINARD STEEL DIVISION**
Griswold Street, Dept. 11-10
Warren, Ohio

*If you write maker identify as* **IEN - 10997**




Need Rails—Switches—Frogs—Guard Rails or Track Tools? For best selections and prompt deliveries—try FOSTER—shipments of most items can be made from stocks in our five nationwide warehouses.

**RAILS—New and Relaying** Foster stocks are being replenished daily. Any items we did not have last week, we'll probably have next week. We match specifications and sizes to meet all your requirements on any job, new installations or replacements. *Call on Foster for all your needs for Industrial Track Equipment and Supplies.*

***Write for Track Equipment Bulletin IE-10.***

**L.B. FOSTER co.**

CHICAGO 4, ILL. HOUSTON 2, TEX.
PITTSBURGH 30, PA. NEW YORK 7, N.Y.

*If you write maker identify as* **IEN - 10998**

# CAPCO DOCK COVERS OFFER YEAR 'ROUND PROTECTION

Can be installed inside or outside of dock door . . . . models for various purposes.

## SOLD AT A LOW COST

. . . and the cost is especially low because it pays for itself many times . . . saves time and money over many years.

- PREVENTS ACCIDENTS
- ONE MAN CAN OPERATE
- FIREPROOF
- WATERPROOF
- DURABLE — LONG LIFE
- DEPENDABLE

## BEAT THE BAD WEATHER

CAPCO Dock Covers completely enclose the space between car and building doorways, protecting loading and unloading during bad weather. Recommended by safety engineers. No more wet merchandise in the rain . . . no more interruption during winter. Here's your insurance against loss of either heat or refrigeration; you have practically the same as indoor loading.

**CAPCO**

*Be sure to write for illustrated literature and prices.*

622-24 PROSPECT AVENUE • KANSAS CITY 1, MISSOURI

# USEFUL INFORMATION
*(Concluded)*

*If you write maker identify as* **IEN - 11000**

**PROTECTING . . Handbook on safety tells how to set up and maintain a program in a company**

National Safety Council
423-27 N. Michigan Ave., Chicago 11, Ill.

**Intended purpose** of new 94-page "Handbook of Accident Prevention for Business and Industry" is as a guide to the manager of a small business or the supervisor of a department in a large company. It covers such topics as planning for safety, the plant, machine guards, tools, special hazards, fire prevention, clothing, industrial health, first aid.

*If you write maker identify as* **IEN - 11001**

**STEELS . . Welding instructions for nickel alloy steels in 44-page technical booklet**

International Nickel Co.
67 Wall St., Room 703, New York 5, N. Y.

**Bulletin A-93** describes problems and procedures for metal-arc welding of four general classes of nickel-alloy steels, electrode recommendations, torch welding and cutting. It also reviews recent developments such as submerged-arc, atomic-hydrogen, inert-gas arc and resistance welding.

*If you write maker identify as* **IEN - 11002**

**THREADING . . Cardboard slide selector gives information on fractional and machine-screw taps**

Threadwell Tap & Die Co.
14-18 Arch St., Greenfield, Mass.

**Moving the slide** of new Tap Selector enables you to pick commercial tap drill size and class of fit, basic thread dimensions and tap limits, for machine screws from 0-80 to 12-24 on one side and for fractional sizes from ¼-20 to 1½-6 on the other. Overall size is about 3½ by 7½ inches.

*If you write maker identify as* **IEN - 11003**

**LIFT TRUCKS . . Unusual presentation of the story on the company's power lift truck**

Towmotor Corporation
1224-28 E. 152nd St., Cleveland 10, Ohio

**Novel approach** to the subject of power lift trucks and what they can do is provided by new 12-page booklet, "Mr. Smith to See You, Sir!" It purports to be the words of the company's president making a call on you. It tells how you can use lift trucks, describes performance reports from others, describes service facilities with a check list, provides a follow-up form.

**Best U. S. investment:**

**United States Savings Bonds**

*If you write maker identify as* **IEN - 11004**

***GRIPPING FORCE 15 TIMES AIR LINE PRESSURE***

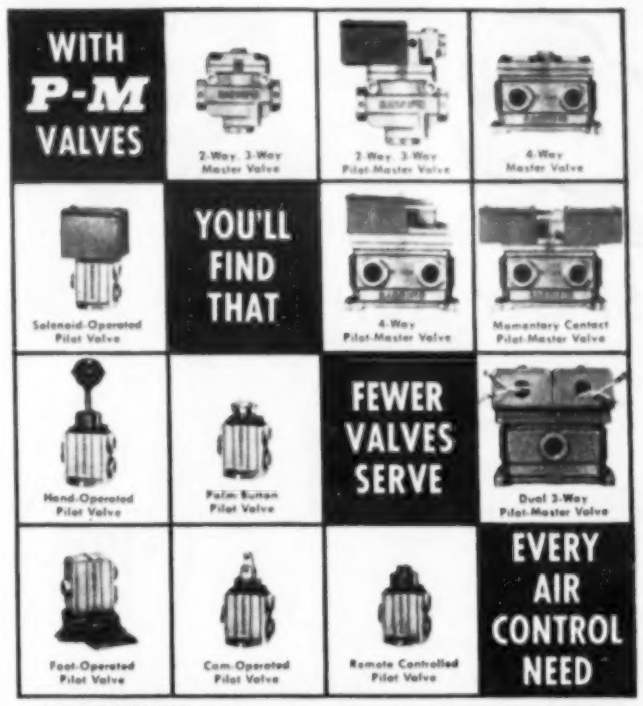
Speedy Air Vise helps you do dozens of operations faster, better, cheaper—by air pressure! Foot control valve opens and shuts vise instantly, leaving *both* hands free to produce *more!* Jaw opens up to 3 inches, holds castings, parts, jigs, etc. Compact and trouble-free. *Complete with Foot Control, Air Hose* and *Fittings* . . . . . only **$36.00**

*Prompt Delivery from Your Supplier or Write Direct*

W. R. BROWN CORPORATION • 2645 N. Normandy Ave., Chicago 35, Ill.

AIR REGULATORS • AIR FILTERS • AIR GUNS • PORTABLE COMPRESSORS

*If you write maker identify as* **IEN - 11005**




***ADAPTABILITY!*** **Singly, or in combination, these valves provide 2-way, 3-way or 4-way control. Hand, foot, cam or solenoid operated. Every pipe size from ¼" through 1¼". Write for Bulletin 231.**

**HANNIFIN**

**Hannifin Corporation, 1107 S. Kilbourn Ave., Chicago 24, Ill.**
**AIR AND HYDRAULIC CYLINDERS • PRESSES • AIR CONTROL VALVES**

*If you write maker identify as* **IEN - 11006**

# NEW CLEANER Does the Work of 3

**IDEAL BLO-R-VAC**

***A "Tank-Type" Cleaner***
***A "Hand-Type" Cleaner***
***A Blower-Sprayer***
***. . . All In One Unit!***

More for your cleaner dollar with this ALL-NEW, low-cost, multi-purpose unit! As a "tank-type" cleaner it vacuums lint, dirt, dust, scrap metal and *picks up water.* Has strong dust-tight bag and 12-gallon steel tank. Power unit can be removed in a jiffy for use as a blower, a sprayer . . . or a hand-type vacuum cleaner! Full selection of attachments available. Built to highest *industrial* standards. Two models —1-1/3 H.P. and 2/3 H.P.

**TRY IT FREE**

SOLD THROUGH AMERICA'S LEADING DISTRIBUTORS

IDEAL INDUSTRIES, Inc.
1108 Park Avenue
Sycamore, Illinois

Arrange FREE DEMONSTRATION of your new BLO-R-VAC in our plant.

NAME_____
COMPANY_____
ADDRESS_____
CITY_____ ZONE____ STATE____

*If you write maker identify as* **IEN - 11007**

# Now find motor coil shorts POSITIVELY and INSTANTLY . . .

**New CROWN INTERNAL GROWLER**

- Anyone can use it
- No Chance for Error!
- Meter Tells the Story!
- For AC Motors

**POSITIVE** . . . meter needle indicates short in coils of stators or armatures and reveals loose bars in rotors

**FAST** . . . No time wasted with hack-saw blades or guesswork. "Pinpoints" the location.

**EASY** . . . no training or experience needed. Meter gives the answer.

• **CHECKS** 115V. to 440V. stators 6" and up I.D., armatures or rotors 6" to 14", operates on 115 V. AC.

**MAIL FOR COMPLETE DATA**

CROWN INDUSTRIAL PRODUCTS CO.
715 Amsterdam Street
Woodstock, Illinois

Please send full catalog information about the New Crown Internal Growler to:

Name_____
Company_____
Street_____
City_____ Zone____ State____

*If you write maker identify as* IEN - 11008

New Becker Model "53" Spray Gun, specially engineered for industry, sprays protective coatings, paints, solvents, cleaners, oils, etc. *Completely portable!* Powerful $CO_2$ cartridge (10 for $1.00) sprays up to one 21-ounce containerful. Tank can be charged from air hose (for liquids atomizing at 120 psi), with special attachment. Rugged steel tank, machined brass and stainless inserts, cast aluminum head. See your Distributor or order direct postpaid.

**SULLIVAN-BECKER CO. Dept. 193-K KENOSHA, WISC.**

*If you write maker identify as* IEN - 11009

*If you write maker identify as* IEN - 11010

**Modine Gas Unit Heaters cut your heating costs**

*With their stainless steel heat exchangers *and* burners, Modine Gas-Fired Unit Heaters are 50% lighter — more compact — than the average of seven other leading makes. That means faster, lower cost installation. Fuel bills are less, too — Modines' superior heat throw and air volume assure balanced heating.

**GET THIS FREE BOOK!**

Ask the Modine representative listed in your classified phone book for Bulletin 653, or write Modine Mfg. Co., 1503 DeKoven Ave., Racine, Wisconsin.

GU-1208

**Modine UNIT HEATERS**

*If you write maker identify as* IEN - 11011

## WELDING . . DC arc machine gas shields and feeds wire electrode

**Source: GENERAL ELECTRIC CO. Dept. 6X-201, Schenectady 5, N. Y.**

**High speed metal deposit**

**Electrode** wire of aluminum, stainless steel, mild steel, copper, magnesium, can be employed in this new Fillerarc equipment with argon or helium shielding gas. Welding can be accomplished in down hand, vertical or overhead positions to weld aluminum of any alloy in thickness from ¼ to 3 in. and stainless steel from $\frac{1}{16}$ to 1 inch. The equipment also will weld nickel, magnesium.

**The motor driven** generator, rated at 450 amp., has rising volt-amp. characteristics. Thus, as current is produced by the welder, the voltage generated increases to make the operation self regulating. The operator sets arc length at a control lever on the housing. Then he can change wire feed before starting, or while welding, without need for other adjustments. Speed can be set also at any point to 750 ipm. by means of a remote switch. The setting will be held constant by the electronic Thy-Mo-Trol feed equipment.

**To make a weld** the gun is positioned and the trigger pulled for preliminary gas coverage. Then it is released to start the wire feed. The arc starts as the wire touches the work. Operating the trigger again stops the wire feed and the gun is held in place over the work to provide gas coverage as the weld cools. Arc current is reduced to zero when feed stops. At the same time the generator voltage drops and the arc goes out without burning back to the gun.

**The gun** contains knurled feed rolls that pull the electrode wire from a spool mounted in the wire drive unit. It is water cooled and will handle wire ranging from 0.030 to 0.093 in. in diameter. Dynamic braking, in connection with the feed, assures wire will projection from the gun nozzle at the end of the weld, ready for the next start so it need not be trimmed.

*If you write maker identify as* IEN - 11012

## PROTECTING . . Hot materials mitt is made of asbestos, leather and wool

**Source: SINGER GLOVE MFG. CO. 858-62 W. Weed St., Chicago 22, Ill.**

**Steel stapled**

**Asbestos** on the work face of this new Kool-Mitt protects the leather forming the body and insulates against heat. The leather provides the working strength to back up the asbestos. An inner lining of wool completes the insulating action. The back is open for ventilation. A wrist strap permits withdrawing the hand to let the mitt hang free on the wrist. The asbestos is carried around the forefinger position as shown in the illustration.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

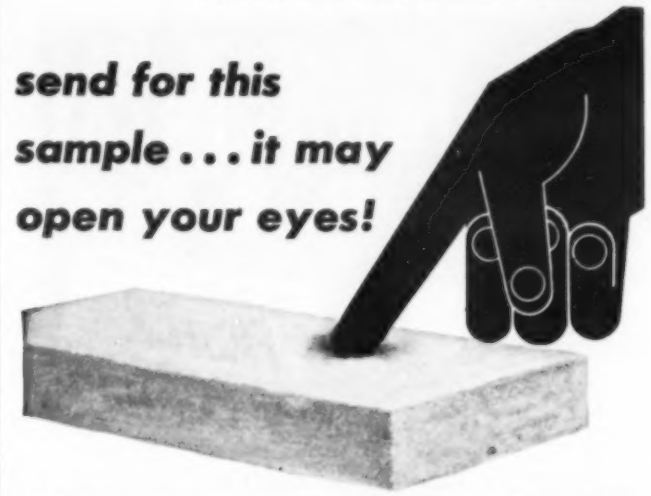
*If you write maker identify as* IEN - 11013

- Rugged simplicity aptly describes the Model 32. Derby's exclusive, one-piece solid casting eliminates parts and provides added rigidity. What's more, the Model 32 is easy to clean, even during the hot summer months when machines tend to "gum-up."
- The Derby Model 32 accommodates any tape from 1" to 3" wide. Delivers from 4 inches to 34 inches of tape at one stroke.
- Derby's exclusive "moisture-control" system maintains a maximum high water level in the tank to assure a constant supply of water to the brush, no matter how fast tape is dispensed.
- Also available is the Model 32-T with tool steel shear-type blades for cutting reinforced strapping tapes. Blades have two cutting edges to double their useful life before resharpening.

*For further information, write Dept. IF*

**DERBY SEALERS, INC.**
Derby, Connecticut

*If you write maker identify as* IEN - 11014




A simple request will bring you a sample of one of the most amazing materials ever developed by science. It is Tufflex, the fiber felt, and it's cutting production costs—adding quality—in many industries today. Tufflex is downy soft—amazingly resilient. It cushions. It withstands heavy impact blows. It insulates. It deadens sound. It is easily fabricated to any size or shape. Tufflex is available in a variety of densities and thicknesses—and in moisture resistant and fire retardant forms. Learn more about the many new uses for Tufflex—send today for your sample and complete information.

**Wood Conversion Company, Dept. 126-103, First National Bank Bldg. St. Paul 1, Minnesota.**

**TUFFLEX*** A Product of Weyerhaeuser

*REG. U. S. PAT. OFF.

*If you write maker identify as* IEN - 11015

## "TEFLON" SEALING

*Exclusively at Graef Engineering Company*

Seal maintains all the desirable properties of "TEFLON"
- Extreme chemical resistance
- High temperature stability
- Superior electrical properties
- Non-adhesion

Allows fabrication from "TEFLON" film

POTENTIAL APPLICATIONS

| "TEFLON" bonded to "TEFLON" | "TEFLON" bonded to Metal |
|---|---|
| Bags and Sacks | Valve Discs |
| Tank Liners | Vat Liners |
| Containers | Capacitors |
| Protective Clothing | Protective Coatings |
| | Heat Sealers |

*Write us for full details.*

**GRAEF ENGINEERING COMPANY**
P. O. Box 416, Clearwater Station
Paramount, California

*If you write maker identify as* IEN - 11016

## do you use POISONOUS carbon tetrachloride?

***FORMULA 602 SAFER!***

Continued use of carbon tet causes severe and incurable damage to liver, kidneys, heart, adrenal glands and nervous system by absorption through skin. Safety authorities caution against its use. FORMULA 602 is 24 times safer than carbon tet!

***FORMULA 602 CLEANS MOTORS AND ALL ELECTRICAL EQUIPMENT***

FORMULA 602 effectively cleans motors, radio parts, coils, condensers, generators and all electrical equipment. It dries rapidly without leaving a residue, corroding metals or damaging electrical insulation.

***OTHER USES!***

FORMULA 602 is used to remove residues of solder flux from contact points, dip tank degreasing of parts and tools, as a diluent and wherever carbon tet is now used for cleaning!

**SEND FOR FULL INFORMATION!**

**RESULT OF TEST BY INDEPENDENT LABORATORY!**

**CARBON TET**
10 rats inhaled 125 parts carbon tet per million parts air for 2 days, 30 minutes each day. All 10 rats died!

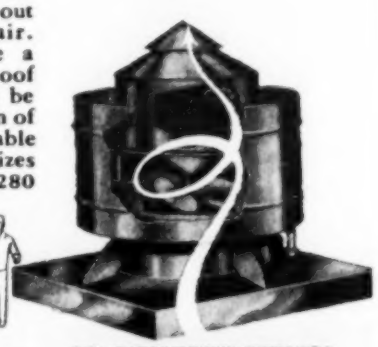
**FORMULA 602**
10 rats inhaled 125 parts Formula 602 per million parts air for 14 days, 30 minutes each day. All rats alive and healthy after test!

**the PENETONE co.**
BOX IEN-1053 TENAFLY, NEW JERSEY

If you write maker identify as IEN - 11017

## IF THE AIR IN YOUR PLANT IS all fouled up...

No problem too tough-whether your air is London Fog thick or Sahara Dry-gaseous or dusty- smoky or hot . . . MUCKLE VENTS remove it quickly and efficiently. These streamlined, propellerdriven,roofmounted ventilators are designed with motor out of the air stream to effectively pull out either wet or dry air. MUCKLE VENTS are a completely weatherproof packaged unit ready to be installed with a minimum of expense and work, available in wide range of 15 sizes from 254 CFM to 10280 CFM.



LET MUCKLE VENTS INCREASE EFFICIENCY IN YOUR PLANT!

Muckle

WRITE SOME TERRITORIES OPEN FOR SALES REPRESENTATIVES

MANUFACTURING CO., OWATONNA 33, MINN.

If you write maker identify as IEN - 11018

## Tape it with Behr-cat®

**EASY TO APPLY!** No special tools or machinery needed and no special skills. Saves labor costs. Safe, quick sticking BEHR-CAT Strapping Tape No. 211 is the modern way to pack, wrap, and bundle your products for shipment.

**PLENTY STRONG, TOO!** BEHR-CAT Strapping Tape No. 211 is filament-reinforced to withstand the shocks and rough treatment of any shipping method. Won't damage or scratch surfaces.

**TRY A SAMPLE ROLL** — Write on your business letterhead to Behr-Manning Corp., Troy, N. Y., Dept. IEN-10.

In Canada: Behr-Manning (Canada) Ltd., Brantford.
For Export: Norton Behr-Manning Overseas Inc., New Rochelle, N. Y., U. S. A.

BEHR-MANNING® division of NORTON Company

If you write maker identify as IEN - 11020

## CUTTING . . Oxygen-powder lance pierces concrete, fabric, metals

Source: LINDE AIR PRODUCTS CO.
30 E. 42nd St., Room 308, New York 17, N. Y.

Also for scarfing

**New dispenser,** to the left in the illustration, delivers a steady flow of airborne metallic powder to the oxygen powder lance shown to the right. The powder enters the oxygen stream that flows through the lance to produce an exothermic reaction. Resulting heat is sufficient to pierce holes in concrete, cinder blocks, fire brick, aluminum billets, steel and cast iron containing inclusions, sand incrustations.

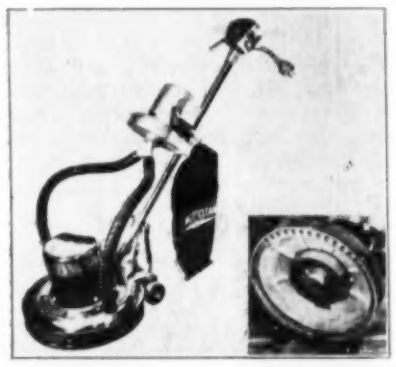
**Powder capacity** of the dispenser is 200 pounds. The powder is delivered at conveying air pressure to 100 pounds. A relief valve on the dispenser housing vents at this pressure for safe operation. The powder is delivered through a standard ¼-in. rubber hose. Overall dimensions of the dispenser are about 13 by 40 inches. Weight is 94 lb. without the powder.

**The lance** is known as Oxweld ACL-1. It is operated at a single lever which controls the flow of both oxygen and powder. A thumb latch keeps the valves open so the operator can use both hands to move the lance. The oxygen and powder tubes are enclosed to protect them in the event of rough handling. The lance pipe holder operates like a drill chuck. It is turned to open and reverses to lock the lance pipe in place and seal it gas tight. Three interchangeable holder sizes take ¼, ⅜ and ½-in. pipe.

If you write maker identify as IEN - 11021

## CLEANING . . Vacuum attachment for company's heavy duty floor machines

Source: MULTI-CLEAN PRODUCTS INC.
2281 Ford Parkway, St. Paul 1, Minn.



For MC-16 machines

**Ring type** head with two connecting hoses, a motor driven suction blower and a dust bag, make up a new attachment for the Multi-Clean line of heavy duty floor machines, previously described IEN-3436-53. The attachment is employed particularly when the machine is set up to do light or finish sanding. It can be put in place in about 10 minutes with its 1-hp. motor mounted on the floor machine handle. This motor is connected to the machine's main drive motor so both start at the same time. Dust is picked up through the ring so the floor is left clean.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11022

## FOR QUICK STARTS

In steam heated processes, output is increased if air is vented from the steam space.

The *rapid* removal of both large volumes of air and condensate are features of the

## SARCO THERMOSTATIC STEAM TRAP

The powerful thermostatic bellows permits the use of an OVER-SIZE orifice and this orifice is WIDE OPEN when the trap is cold.

No seats to change . . . regardless of steam pressure changes. Only one operating part . . . the dependable, one-piece thermostatic bellows made of phosphor bronze, monel or stainless steel.

For removing air and condensate from dryers, kettles, pans, cookers, etc., use Sarco No. 9.
Write for Catalog 252. 506

SARCO SAVES STEAM — SARCO COMPANY, INC. Empire State Bldg., New York 1, N.Y. SARCO CANADA, LTD., TORONTO 5, ONTARIO

If you write maker identify as IEN - 11023

Corrugated box body

Steel dump body

## *Standardized* for economy *Flexible* for every need

Basic design, materials, fabrication of the A-310 Trailer have been standardized through years of rigorous testing under severe industrial service. Sizes, deck specifications, body types and superstructure are flexible to the requirements of each individual user. Wheel type and coupling system are optional. The result is the Mercury A-310 Trailer . . . standard of industry for efficient, low-cost, load carrying service. For complete details write for Bulletins 160 and A999.

MERCURY — FORK TRUCKS · TRACTORS · TRAILERS

MERCURY MANUFACTURING COMPANY
4132 South Halsted Street, Chicago 9, Ill.

If you write maker identify as IEN - 11024

If you write maker identify as IEN - 11025

One good way to build longer life into your products is to design with Hackney *stress relieved* pressure tanks and ASME vessels, especially where vibration will be encountered.

All fabricating and welding stresses are fully relieved in automatic heat treating furnaces, under accurately controlled time and temperature conditions.

Stress relieved Hackney deep drawn pressure vessels save weight, too, provide greater strength, and better design. Write today for full information.

Hackney — PRESSED STEEL TANK COMPANY
*Manufacturer of Hackney Products*

1449 S. 66th St., Milwaukee 14 • 1322 Vanderbilt Concourse Bldg., New York 17 • 253 Hanna Bldg., Cleveland 15 • 936 W. Peachtree St., N. W., Room 135, Atlanta 3 • 208 S. LaSalle St., Room 786, Chicago 4 • 577 Roosevelt Bldg., Los Angeles 17 • 18 W. 43rd St., Room 23, Kansas City 11, Mo.

CONTAINERS FOR GASES, LIQUIDS AND SOLIDS

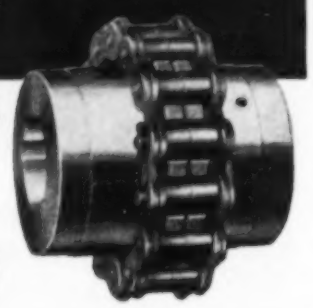
*If you write maker identify as* IEN - 11026

## Only LINK-BELT "RC" Flexible Couplings give all 3 advantages at low cost

1 Equalized load

2 Proper balance at high speeds

3 Effective compensation for end float and misalignment



Link-Belt's exclusive design makes the difference. The simplicity of single-width chain is combined with divided rollers to give you top performance—plus economy. Specify Link-Belt Roller Chain Couplings for any rating from fractional to 1000 hp. Get all the facts from your Link-Belt representative or distributor, or write for Folder 2363. 13.210

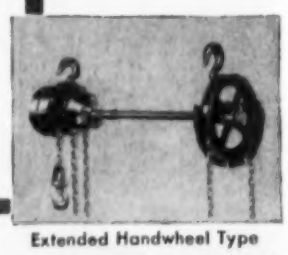
**LINK-BELT**

**"RC" Flexible Couplings**

LINK-BELT COMPANY: Plants: Chicago, Indianapolis, Philadelphia, Colmar, Pa., Atlanta, Houston, Minneapolis, San Francisco, Los Angeles, Seattle, Toronto, Springs (S. Africa), Sydney (Australia). Sales Offices, Factory Branch Stores, Distributors in Principal Cities.

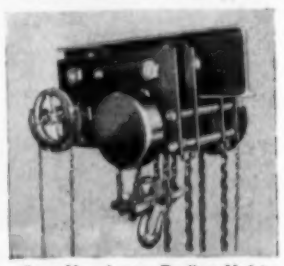
*If you write maker identify as* IEN - 11027

## GET "Special" CHESTER CHAIN HOISTS for special handling problems



Extended Handwheel Type

### ...get faster service at CHESTER



Low Headroom Trolley Hoist

If you have a special problem in your plant, in handling, lifting, lowering or moving . . . chances are excellent that there is a Chester Hoist "Special" that will simplify the operation and save you time and money.

For example, the Extended Handwheel hoist can be efficiently operated from a safe distance in lifting and moving hot, freshly painted or hard-to-handle loads. Or if floor to ceiling height in your plant is too limited for standard hoist and trolley equipment, the Low Headroom type with built-in trolley can easily solve that problem.

If you can use a Chester Hoist "Special" to facilitate your production, ask your distributor today—or write us for Chester catalog and tell us your "special" problem.

National PRODUCTS

**CHESTER HOIST DIVISION**
**The National Screw & Mfg. Co.**
Lisbon, Ohio

*If you write maker identify as* IEN - 11028

helps prevent colds

## Production line and office workers can now work in absolute comfort

The new low priced ELECTRO MAT throws off a gentle warmth that keeps workers healthy, happy and comfortable. 14" x 21" portable foot warmer is safe and economical . . . consuming less power than a 75 Watt light bulb. It is made of high quality neoprene rubber.

### *Attention Employers*

Increase the efficiency of your employees and help prevent colds which cause absenteeism by equipping each employee with an Electro Mat.

Mail check or money order today Only **$6.95** f.o.b. factory

IMPORTANT SAVING: If 6 or more Electro Mats ordered price is only $5.95
Please send me: ☐ Electro Mat at $6.95 each.
Enclosed is my check ☐ money order ☐
☐ C.O.D. I am enclosing $1.00. Will pay postman balance of $5.95 plus C.O.D. and freight charges.
Name _____
Street _____ Zone ____
City _____ State _____
10 Day Money Back Guarantee
INTERSTATE RUBBER PRODUCTS CORP., Dept. 111
908 Avila St., Los Angeles 12, California

Dealer Inquiries Invited.

*If you write maker identify as* IEN - 11029

## TESTING . . Ultrasonic equipment detects flaws, reads metal thickness

Source: J. W. DICE COMPANY
3 Engle St., Englewood, N. J.

Bulletin 1010

Access is required to only one side of a metal object that is to be checked for internal invisible flaws, or measured for metal thickness, with this new Model MS-101 Metroscope. It will expose the existence and show location and extent of a flaw in sheet, plate or flat bar stock when the probe is moved over the surface. Measurement accuracy is within 2 per cent in normal operation.

**An electronic oscillator** in the housing generates a high frequency signal that is impressed upon a piezo-electric quartz crystal in the hand probe. The crystal converts the electrical impulses to high frequency sound waves. The waves are transmitted to the surface of the metal under test after the surface has been oiled to make good physical contact. The waves travel through the metal until they reach air on the opposite face or a flaw in the metal structure. Either will cause them to be reflected back to the crystal for amplification and display on the equipment screen.

**Five** thickness ranges, based on steel, are 0.015 to 0.030 in. minimum, 0.150 to 0.300 in. maximum. The steel scale can be employed with a correction factor for other metals, or special scales can be supplied.

*If you write maker identify as* IEN - 11030

## PLASTIC . . Free flowing powder for calendering, extruding and molding

Source: GOODYEAR TIRE & RUBBER CO.
1142-46 E. Market St., Akron 16, Ohio

**For strength and toughness**

**Plio-Tuf** is a new white free flowing powder resin to manufacture plastic products with ability to resist attack by heat, impact, tension, acids, alkalis. Typical products are automotive parts, television screens, luggage, plastic pipe. The material can be made into sheets, rod, tube, by calendering and extruding. Complex shapes can be formed with regular plastic molding equipment.

*If you write maker identify as* IEN - 11031

## METALS . . Laminated strip for electric contacts by blanking

Source: D. E. MAKEPEACE COMPANY
50 Dunham St., Attleboro, Mass.

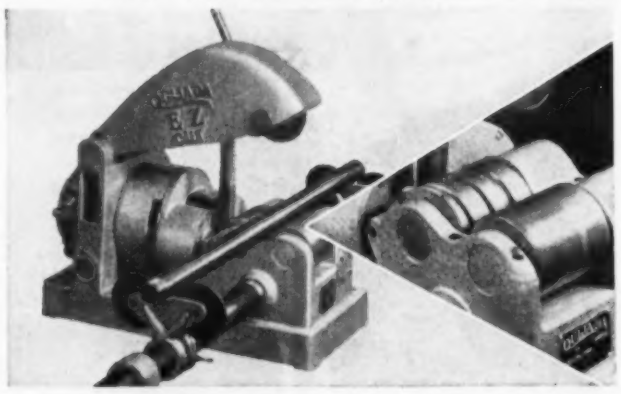
**Employs metals as specified**

**Raised-Lay** is a new laminated material consisting of one or more ingots of precious electrically conductive metal bonded to a base metal. The laminated material is rolled to specified strip width and thickness. Electric contacts are formed by blanking. Rolling produces a dense contact surface.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11032

## Thousands of Cuts Per Sharpening with Portable Quijada E-Z Cutter



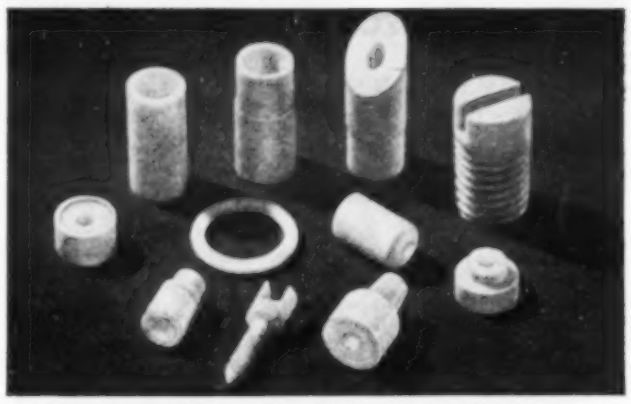
You'll find the Quijada E-Z Cutter the handiest pipe, tube and conduit cutter you've ever used. Weighs only 100 lbs. yet handles all cutting requirements in pipe from 3/8" to 2" (up to 3" in tubing and conduit). You get more cuts per sharpening of cutter wheel because Quijada's patented power driven rollers revolve pipe or conduit for constant cutting...no slipping. Comes with convenient foot switch. Built to last a life-time.

Unconditionally guaranteed by

QUIJADA TOOL DIVISION OF GAINES-COLLINS
5474 Alhambra Ave., Los Angeles 32, Calif.
*Manufacturers of Automatic Threaders and Cutters for more than a Quarter Century*

• Write today for new catalog IEN-10

*If you write maker identify as* IEN - 11033



FOR PRECISION ELECTRICAL PARTS MADE OF

## *TEFLON,* KEL-F,‡ NYLON or POLYTHENE . . .*

SEND YOUR INQUIRIES TO GARLOCK

1. Finished Electrical Parts — molded or machined — of Teflon, Kel-F, Nylon or Polythene.
2. Teflon Tape — electrical grade — pretested for dielectric fault (maximum 85 per 100 ft. of 0.005" tape).
3. Sheets, Tubes, Sleeves and Other Shapes — Teflon sheets as large as 48" square; Kel-F sheets and discs as large as 48" diameter.

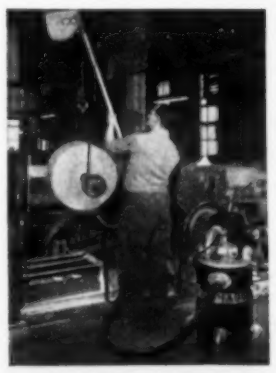
MAIL YOUR INQUIRIES TO DEPT. 34 TODAY!
THE GARLOCK PACKING COMPANY
PALMYRA, NEW YORK
In Canada: The Garlock Packing Company of Canada Ltd., Toronto, Ont.
Branch Offices in Most Principal Cities

GARLOCK

*Du Pont Company's Trademark
‡M.W. Kellogg Company's Trademark

*If you write maker identify as* IEN - 11034

## Housekeeping Headache *Takes a Powder* when TORNADO® goes to work



### Overhead Too

Lightweight tools simplify cleaning of overhead fixtures and equipment.

The Standard Packaging Corp., Chicago, uses a fine drying powder in printing millions of foil milk bottle closures every day. This powder leaves a fine, dust-like deposit on their presses, floor and overhead fixtures.

To beat their housekeeping problem, Standard puts Tornado to work. Air rushing through this cleaner at more than 300 m.p.h. supplies plenty of powerful vacuum. This means faster, more thorough pressroom cleaning—and reduced maintenance costs.

If you have a problem with dirt, dust, chips, water or oil in your plant, find out how Tornado can clean things up—boost production by improving working conditions, efficiency and morale.

*WRITE FOR YOUR COPY OF BULLETIN 600*

**BREUER ELECTRIC MFG. CO.**

5108 NORTH RAVENSWOOD AVENUE • CHICAGO 40, ILLINOIS

*If you write maker identify as* IEN - 11036

***32 Pages of Helpful Information on Dust Recovery Systems***

If you are now using dust or fly ash recovery equipment in your plant—or are planning installation of such equipment now or later—you will find this 32 page Multiclone booklet full of helpful information. Illustrations and diagrams outline basic principles of dust recovery and how to utilize them for maximum efficiency . . . how to simplify your installations . . . how to conserve valuable plant space . . . how to get high recovery over a wide range of particle sizes, etc. ***A copy of this booklet should be in your files for reference and assistance in dust recovery applications. A free copy will gladly be sent you on request. Write today while supplies are adequate***

**WESTERN Precipitation CORPORATION**

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

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PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

*If you write maker identify as* IEN - 11037

✔ ***Hydraulically Controlled Power***
✔ ***No Gear Shifting or Clutching Delays***
✔ ***Effortless Driver Control***

From the first name in Mass Handling Equipment comes the last word in torque drives for fork lift truck applications. Here is a product of intensive research and engineering, truly a trouble-free torque converter drive—available to match the capacity range of all Towmotor power plants. For the complete story in a nutshell—send for book on TowmoTorque now. Towmotor Corporation, Div. 2610, 1226 E. 152nd St., Cleveland 10, Ohio.

***TOWMOTOR ENGINEERED FOR QUALITY PERFORMANCE***

*If you write maker identify as* IEN - 11038

# ROTARY INDEX TABLE

## Air operated, 4 to 30 positions

Ten-inch top of Model-H Index Table is rotated by a 2½-inch air cylinder operating on 60 to 175-lb. pressure. It operates positively with no kickback in stopping.

Standard table is supplied with a 4, 6, 8 or 12-station ring. Other rings to 30 indexes will be supplied to order. Speed is variable from 6 to 100 indexes per minute.

Designed for use on punch presses, air or hydraulic presses, drilling machines to handle parts or fixtures for drilling, tapping, staking, trimming, riveting. A Micro switch prevents rotation when locked.

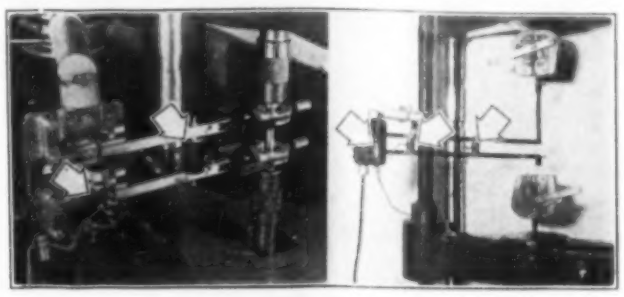
**1953 Catalog on request**

**AIR-HYDRAULICS INC.**
**809-13 Belden Ave. Jackson, Mich.**

*If you write maker identify as* IEN - 11039

## TESTING . . Dual extensometer to produce stress-strain diagrams

**Source: BALDWIN-LIMA-HAMILTON CORP.**
**Paschall Post Office, Philadelphia 42, Pa.**



**Applies on testing machine**

**Model TS-M** is a new extensometer employing two or three Microformers for multiple selective strain magnifications during a given test. Two are shown to the left in the illustration, three in the setup to the right. The multiple readings are employed to produce diagrams above and below the elastic limit of the test specimen. The Microformer is a miniature transformer for transmission of the strain variations.

**Ten strain** magnifications range from 5 to 200 to 1 with the Microformers in three positions on the extensometer slide and horizontal arms and by selection of three magnifications available in the recorder. The extensometer can be employed on wires, flats and round specimens with standard optical adapters. Wires can be 0.02 to 0.25 in. in diameter with gage lengths of 2, 8 and 10 inches. Round specimens can be 0.25 to 2 in. in diameter with 2-in. gage length. Flat specimens can measure to 1 in. in thickness and 1½ in. in width with gage lengths of 2, 8 and 10 inches. Elongation to 2 in. can be measured.

*If you write maker identify as* IEN - 11040

## GAGE . . Reversing rotating head drives and retracts a thread gage

**Source: TAFT-PEIRCE MFG. CO.**
**32 Mechanic Ave., Woonsocket, R. I.**

**No manual turning**

New assembly of the Rotochek, previously described IEN-5662-49, mounts the thread gage chuck directly on the spindle of the motor driven head rather than at the end of a length of flexible shaft as in the original equipment. Both designs are now available for production line thread checking and inspection.

**The standard spindle** will take AGD tapers No. 00, No. 0, No. 1 and No. 2 covering a range of thread gages to 0.510 in. in nominal diameter. A larger spindle assembly can be supplied to extend this range to include No. 3 tapers.

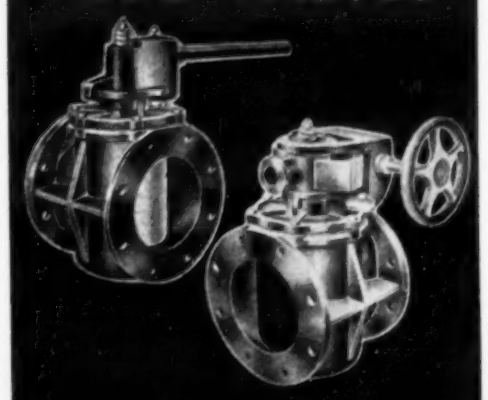
**Work** is brought to the rotating gage and slight forward pressure is employed to thread the gaging member into the part at the rate of 4 rps. Reversing this pressure, to apply a light pull, causes immediate disengagement or reversal of the drive as desired. Torque control is provided by a clutch to eliminate any danger of damage to the parts being inspected.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11041

# E-A-S-Y

IS THE WORD FOR
DeZURIK
PLUG VALVES



Without Lubrication -- with just a smooth quarter-turn --- DeZurik valves open to full-flow or shut dead-tight every time in any service!

**DeZURIK "EASY OPERATING" PLUG VALVES**

Don't Leak,
Don't Stick,
Don't Gum Up!

•

In a full range of sizes and metals. Manual, gear, or air-operated.

•

**DeZURIK SHOWER COMPANY**
Sartell, Minnesota

*If you write maker identify as* IEN - 11042

# LONGER Anode Life . . . With *Udylite* Ferrolum

Udylite Ferrolum Anodes are made with a STEEL core, clad with lead . . . the molecules of both metals are bound inseparably together. The anodes can't crack or peel no matter how they are bent or twisted. As a result, Ferrolum Anodes combine high, even electrical conductivity with the finest corrosion resistance . . . PLUS great rigidity and strength!

New Udylite Ferrolum Anodes offer exceptionally long life. That means long-range economy as well as low initial cost. They offer more uniform deposits too, with less build-up of insulating film and shorter plating time. Also, Udylite Ferrolum Anodes are much lighter in weight.

These new anodes are available in type I, Chemical Lead Clad, type II, Tin-Lead Clad, and type III, Antimonial Lead Clad.

Get the full story on these NEW Udylite Ferrolum Anodes from your Udylite technical man today, or write direct. THE UDYLITE CORPORATION, DETROIT 11, MICHIGAN.

***Check these Advantages —***

1. Economical cost.
2. Better and more uniform conductivity.
3. Great rigidity and strength.
4. Lightness in weight.
5. Less build-up in insulating film.
6. Longer Life.

**THE UDYLITE CORPORATION**
**DETROIT 11, MICHIGAN**
***PIONEER OF A BETTER WAY IN PLATING***

*If you write maker identify as* IEN - 11043

## THEY GRIND--NOT JUST RUB!

The RPM's stay up while grinding . . . not only when the grinder runs idle.

It is an established fact that surface speeds must stay up to approximately a mile a minute if you want to grind . . . not just rub. Every mechanic knows this, but an inexperienced buyer may order tools that maintain proper grinding speeds only when running idle. The speed of Kipp air grinders drops but slightly when put to work. That means better work . . . longer wheel life.

**MADISON-KIPP CORP.**
**224 Waubesa St., Madison, Wis., U.S.A.**

**Write for KIPP Air Tool Catalog AT 3006**

*If you write maker identify as* IEN - 11044

new method of **process heating** and **cooling**

***saves 50%**

- * in initial cost
- * in heating and cooling time
- * in tank space
- * in maintenance labor

Each member of your buying committee should have this book which tells how Platecoils satisfactorily solve tank heating and cooling problems . . . and at the same time save time, money and manpower.

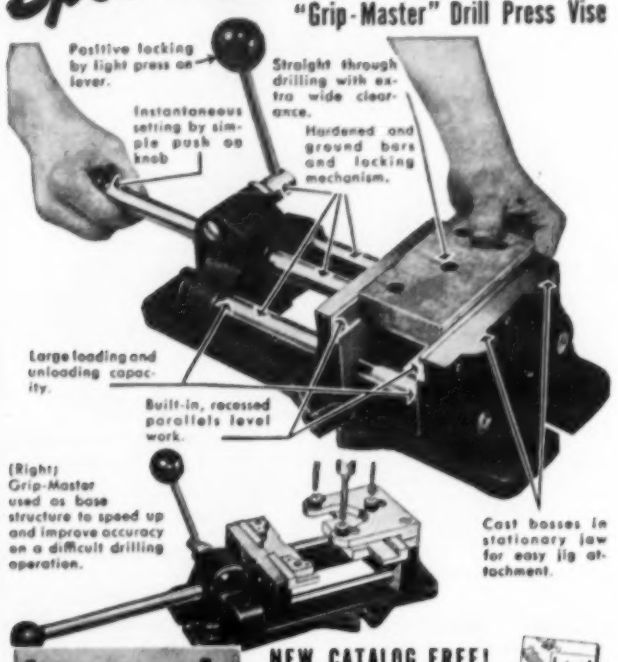
**PLATECOIL REPLACES PIPE COILS**

*Write for your free copy of Bulletin P56 today!*

**TRANTER MANUFACTURING, INC. • LANSING, MICH.**

If you write maker identify as IEN - 11045

# Speed-up OPERATIONS with heinrich "Grip-Master" Drill Press Vise




**heinrich** TOOLS, INC.

**NEW CATALOG FREE!**

Be sure you have a complete Heinrich Tool Catalog in your files. Your copy will be sent free upon request.

**DEPT. 173-K • RACINE, WIS.**

Drill Press Vises • Fixture Locks • Nibblers Punches • Rod Cutters

If you write maker identify as IEN - 11046

## Check these features of Trumbull NLTQ Lighting Panelboards

- Incorporate Trumbull TQL plug-in circuit breakers with thermal-magnetic trip, trip-free action, trip indicating position, manual re-set.
- Readily removable interiors, with busbars molded in plastisol (run cooler than in open air).
- Protected barriers, integral with front.
- Breaker knockouts in front panel to provide for future circuits.
- Compact boxes with adequate knockouts and gutters.

**NLTQX** *(column type) Panelboards fit standing "I" beam. Available in from 4 to 40 circuits for both 3- and 4-wire services.*

**NLTQ** *Panelboards: Available in from 4 to 42 circuits for both 3- and 4-wire services with lugs only, or 50 to 225 ampere breakers in mains and 10 to 50 ampere breakers on branches. AC only.*

**GENERAL ELECTRIC**
DISTRIBUTION ASSEMBLIES DEPARTMENT
PLAINVILLE, CONN.

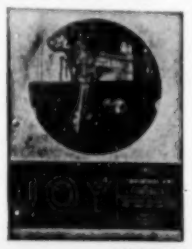
Sold everywhere through leading distributors. Let us mail you Bulletin TEB-14.

If you write maker identify as IEN - 11047

# JOY WG-9 "Industrial-Air" COMPRESSOR

***Saves space—gives you top efficiency—built for heavy duty***

- ★ Full force-feed lubrication of all working parts
- ★ Replaceable cylinder liners and crosshead guides
- ★ Small floor area and simple foundation requirements
- ★ Anti-friction main bearings



**15 Sizes—172 to 881 CFM**
**20 to 150 psi**
**FREE BULLETIN**

For complete details, write for new Bulletin A-43, or...

*Consult a Joy Engineer*

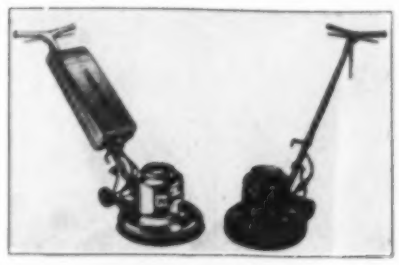
WAD 13088

**JOY MANUFACTURING CO.**
General Offices: Henry W. Oliver Building
Pittsburgh 22, Pa.
IN CANADA: JOY MANUFACTURING CO. (CANADA) LIMITED
GALT, ONTARIO

If you write maker identify as IEN - 11048

# CLEANING . . Rotary brush machine to scrub, sand, wax and polish a floor

**Source: BREUER ELECTRIC MFG. CO.**
**5130 N. Ravenswood Ave., Chicago 40, Ill.**



**Bulletin Series 70**

**The operator** of this new Series-70 Tornado floor machine can keep the motor circuit closed and the machine in operation with negligible pressure by either hand. He controls flow from the solution tank on the handle at one of the two control switches. He observes the liquid level in the Royalite tank through a built-in clear plastic sight gage. He fills the tank through a stainless steel screened opening.

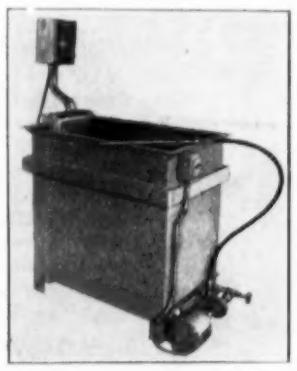
**He can engage** a brush standing on the floor by wheeling the machine over it and then starting the motor. To remove the brush he stops the machine, tilts it and, with his foot, releases the brush from the drive shaft.

**New handle design** with its under-handle cable connection, self-retracting non-marking neoprene wheels are representative improvements in the new machine as compared to the Series 6000, previously described IEN-2444-53. Brush spread, in three sizes, is from 14 to 18 inches. The motor rates ½ to 1 hp. and weight without the brush is 87 to 111 pounds. Brush speed, in each case, is 172 rpm. The company is prepared to supply various accessories including wood back and Foam-feed metal back brushes, sanding discs, steel wool pads, lambs' wool buffing pads, grinding discs. The tank holds 4 gallons.

If you write maker identify as IEN - 11049

# CLEANING . . Degreasing equipment rates 500 lb. of metal parts per hour

**Source: MANUFACTURERS PROCESSING CO.**
**1360 Hilton Road, Detroit 20, Mich.**



**Removable heater**

**Manpro B-121** is a new vapor degreasing machine with work clearance measuring 31 by 20 by 16 inches. The machine employs a divided tank to provide boiling and spray pump sumps. It is fitted with a motor driven pump hose and spray gun and with two thermostat equipped vapor controlling condensers. Operation is on 110-volt ac. List price is $534.

If you write maker identify as IEN - 11050

**Recording** and controlling instruments, measuring and control elements and related accessories are available in packaged form for automatic control of various industrial process operations. The equipment has been standardized by Minneapolis-Honeywell Regulator Co., 4456 Wayne Ave., Philadelphia 44, Pa., and is available for specified operations with installation instructions so no specialized skill is required.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11051

# FAST FINISH BAKING

Refinished Relay Covers and other Control Parts Formerly Air Dried in 8 Hours—Now a Better Wrinkle Finish is Despatch-baked in ONE Hour.

## *Despatch* R-S FINISH BAKING OVEN

● Minneapolis-Honeywell Regulator Co. uses the above Despatch R S Oven for refinishing of controls sent in for repair. The black wrinkle enamel on the relay cover shown is baked to an extremely hard, durable finish in 1 hour at 300° F. saving 7 hours of former air drying time! Other parts are baked ½ hour at 350° F. This fast baking of finishes speeds up the entire repair program, improves service to customers.

Despatch R S Ovens are well insulated, very economical, 100% controlled for uniform heat up to 500° F., with temperature variation seldom more than 3° + F. Built in a range of sizes for a great variety of applications. Tell us your needs—

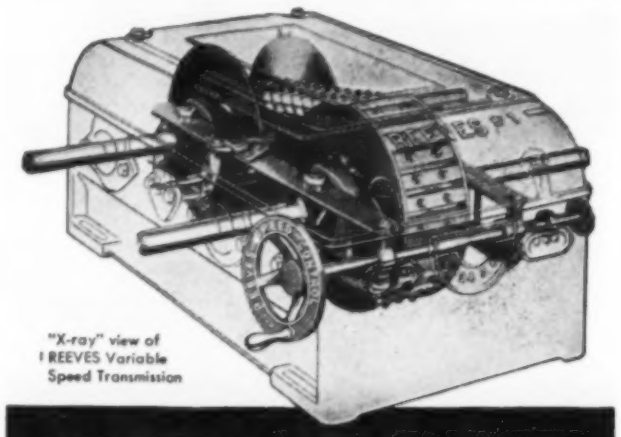
*Write for Bulletin on R S Ovens.*

**DESPATCH OVEN CO.** Established in 1907

*Manufacturers of ovens for:*
**Paint Finishing, Dehydrating, Curing, All Industrial and Laboratory Applications**

337 DESPATCH BLDG., 8th Street at 7th Ave. S. E., MINNEAPOLIS 14, MINN.

If you write maker identify as IEN - 11052



"X-ray" view of REEVES Variable Speed Transmission

# REEVES *Variable Speed Transmission*

Provides positive, accurate speed changes—without stopping machine—to meet the requirements of every operation and operator, under every changing condition. Easily applied to machines in service—requires no special tools or training to maintain. Horizontal and vertical designs, open or enclosed—in sizes fractional to 87 hp; speed ratios 2:1 through 16:1; manual or automatic controls. Internal operating parts also available for easy incorporation within the framework of your machines. Get full details on the complete REEVES line. Write for free Catalog IN71d-G

**REEVES PULLEY COMPANY • COLUMBUS, INDIANA**

If you write maker identify as IEN - 11053

# Need a Pump?

# FAIRBANKS-MORSE has all kinds!

You can choose the exact pump you need from the broad Fairbanks-Morse *quality* pump line-up!

Take this pump . . . it's a moderately priced Fairbanks-Morse Side Suction Centrifugal—but with BIG pump features. Production line methods and precision machining of all parts assure the design, workmanship, and performance obtained only in the highest quality split-case pumps.

See your local Fairbanks-Morse Pumping Expert . . . or write, Fairbanks, Morse & Co., Chicago 5, Illinois.

**FAIRBANKS-MORSE**
*a name worth remembering when you want the best*

PUMPS • SCALES • DIESEL LOCOMOTIVES AND ENGINES
ELECTRICAL MACHINERY • RAIL CARS • HOME WATER
SERVICE EQUIPMENT • FARM MACHINERY • MAGNETOS

*If you write maker identify as* IEN - 11055

Lower
Leg Protection
Costs with...

## NEW REMOVABLE FRAME LEGGING!

Here is AO's new 1512R Legging with removable frame and fabric. Covering is attached by snap fasteners. If covering is damaged, just order new covering. Should a spring break, keep covering and order new frame. 1512R is available in chrome-tanned *cowhide* as the 1512R-CL, in *asbestos* as the 1481R-A, in *flame-resisting duck* as the 1482R-FR. Your nearest AO Safety Products Representative can supply you.

American Optical
SAFETY PRODUCTS DIVISION

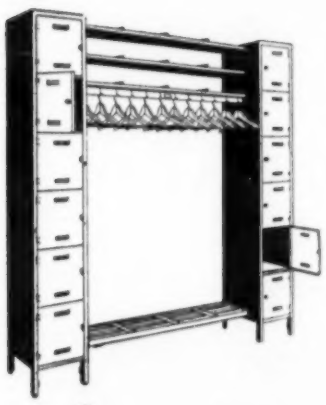
SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES

*If you write maker identify as* IEN - 11056

# VALET RACKS

*Lockerette*
**KEEPS WRAPS**
**"in press"**

**improves health and morale—lowers absenteeism**



Wraps are exposed to air and light. Employees do not face the weather in damp wraps that have been crumpled in dark lockers — do not eat soggy lunches, soaked by wet hats or gloves. Each person has his own spaced coat hanger, ventilated hat shelf and 12" x 12" x 15" deep lock box for lunches, tools and personal effects. Lockerettes save space too . . . the No. 6-12 (illustrated) accommodates 12 people in 6 feet; the No. 9-18 (3-pedestal) accommodates 18 in 9 feet.

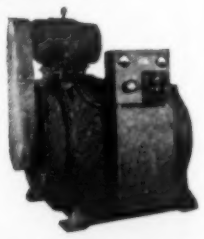
*Write for Bulletin OL-5*

VOGEL-PETERSON CO.
1121 West 37th St. • Chicago 9, Ill.

*If you write maker identify as* IEN - 11057

...FOR A JOB WELL DONE!

**KATO**
*ENGINEERED*
**ELECTRICAL EQUIPMENT**



**KATO ENGINEERING** has been building Special Electrical Equipment and machinery since 1928. Our modern, well equipped plant produces the finest in generators and electrical machinery from the smallest to the largest.

*We Invite Your Inquiries on Special Requirements!*

**A. C. GENERATORS**
Sizes from 100 watts to 300 K.W., in one or two bearings. Speeds of 720-3600 R.P.M., 60 cycles. Also 15-800 cycles, single and three-phase.

**D. C. GENERATORS**
Sizes ranging to 15 K.W.

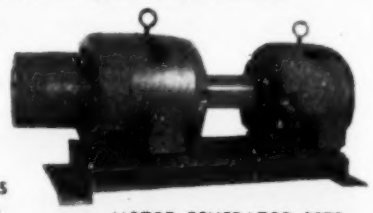
**ROTARY CONVERTERS**
For Changing D.C. to A.C.

**HIGH FREQUENCY CHANGERS**

**D. C. MOTORS UP TO 10 H. P.**

**D. C. MOTORS WITH A. C. TAKE-OFF**

**A. C. MOTORS, SINGLE PHASE**
1, 1½, 3 H. P.



**MOTOR-GENERATOR SETS**
D. C. to A. C., A. C. to D. C. 25 cycles to 60 cycles, 60 to 400 cycles.

**KATO** *Engineering Company*

WRITE TODAY FOR INFORMATION!
1478 FIRST AVENUE MANKATO, MINNESOTA

*If you write maker identify as* IEN - 11058

## PROTECTING . . Goggles to wear when chipping and welding

**Source: UNITED STATES SAFETY SERVICE CO.**
**1213-17 McGee St., Kansas City 6, Mo.**

**Light and comfortable**

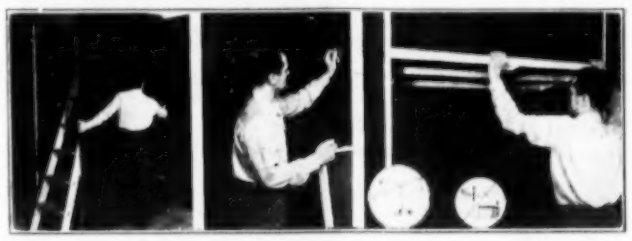
**Saf-I** trade names a new line of goggles including one with clear lenses and ventilated eye cups for chippers, and two, one of which is shown, for welders. The unit not shown replaces the shielded eye cups with a ventilated design.

**The chippers goggle** is equipped with a new plastic lens that is resistant to scratching, is strong and weighs about one-half that of safety glasses. It is known as Optilite A. Optilite B and hardened glass are also available. Each goggle has a headband with an adjustable fastener.

*If you write maker identify as* IEN - 11059

## STORING . . Hardboard panels and fittings assemble into shelving

**Source: B. B. BUTLER COMPANY**
**3148-52 Randolph St., Bellwood, Ill.**



**Available for immediate delivery**

**Peg-Board** trade names the upright hardboard perforated panels that assemble with wing nut fittings in this new shelving. Hooks support shelf panels, also made of hardboard, for economical quick erection without tools. The upright panels are made of ¼-in. hardboard on wood frames. The board is perforated on 1-in. centers vertically and horizontally. Two upright panel sizes are 24 and 48 by 96 inches. The shelves are plain ¼-in. hardboard on wood frames to measure 12 and 24 by 48 inches. A 24 by 48-in. shelf will support 1,000 lb. of distributed load.

**The upright panels** are arranged into combinations of back, end and intermediate units and are secured with angle brackets, wing nuts and hooks anchored in the ¼-in. perforations. The shelves are placed on hooks also located in the perforations. Spacing can be chosen to meet given requirements on the 1-in. perforation centers.

*If you write maker identify as* IEN - 11060

**Need more** compressed air? You can obtain it quickly by employing the new short-term rental equipment available from Air Compressors and Motors Inc., 13708-12 Aspinwall Ave., Cleveland 10, Ohio. The service is suited particularly to get you back in production, following a breakdown or an overload condition, without delay or heavy investment in new equipment. It is offered on a nationwide basis, employing the company's stock of new and used compressor equipment.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11061

**GRIES DIE CAST GEARS & PINIONS ARE BIG NEWS!**

## DIE CAST IN ONE PIECE!

Gries eliminates costly manufacturing and assembly of 2 to 4 separate parts . . . and the savings are all yours! Independent tests prove zinc alloy gears wear well, as they are to some degree self-lubricating. Integral one-piece assemblies can be made with shafts as well as center holes; ALL parts are produced to individual specifications. Gears available up to 1 5/16" outside diameter by 1/16" face width; wider faces as diameter decreases. Many gears, pinions, and combinations can be furnished without tooling charges from stock dies; there is a nominal charge for extra close precision requirements, and special designs.

*Write TODAY for information about Gries standard components*
*Send specifications for prompt estimates.*

America's Foremost Producer of Tiny Zinc Die Castings

**GRIES REPRODUCER CORP.**
139 BEECHWOOD AVENUE • NEW ROCHELLE, N. Y.
Phone: NEw Rochelle 3-8600

*If you write maker identify as* IEN - 11062

Be fresh... stay fresh

**wear a DUPOR No. 20**
**Water-Cooled Respirator**

Double sponges dipped in water before wearing provide cool breathing even under hot, smoky conditions. Recommended for use of workers in paint shops, foundries, steel mills, oil refineries, chemists, firemen, etc. Face mask is of rubber, equipped with DUPOR "controlled breathing" valves. Wearer has a panorama view with no blind spots. Glasses or goggles can be worn with unit.

*Sample sent*
*$2.50 pp*

**H. S. COVER**
**South Bend, Ind.**

*If you write maker identify as* IEN - 11063

**FOR MATERIAL HANDLING—**
more and more—the swing is to wide-base pneumatic tires

# GENERAL

**INDUSTRIAL PNEUMATIC TIRES**

*More Designers are specifying wide-base General Pneumatics. They know Generals add these extra selling points to handling equipment.*

**SAVE TIME • MONEY • LABOR**

- MORE LOAD CAPACITY AT LOW OR HIGH SPEEDS
- CUSHION EQUIPMENT AND LOADS REDUCING BREAKAGE AND SPILLAGE
- SAVE HIGH COST FLOORS AND FLOOR SURFACES
- SLOW, EVEN WEAR FOR LONG SERVICE
- HIGH FLOTATION FOR EASIER ROLLING OVER SOFT GROUND
- ROLLS EASIER, SMOOTHER OVER ALL SURFACES

Available separately or in assemblies of Tires, Tubes and Wheels. Size O.D. 8" to 27"—200 to 4000 lbs. cap. for low or high speeds.

THE GENERAL TIRE

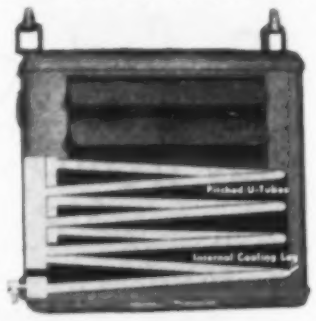
*Rigid* **CASTER FORKS** *Swivel*

**Wide-base caster forks engineered to carry heavier loads without adding dead weight to equipment. Available in identical pairs in a wide range of sizes.**

*SEND FOR CATALOG . . . DEPT. 6*

THE GENERAL TIRE & RUBBER CO. AKRON, O.

*If you write maker identify as* IEN - 11065




With

**THERMOLIER**

... the Grinnell

Unit Heater ...

**YOU GET**

**CONTINUOUS RATED CAPACITY**

Failure of unit heaters to give freedom from collected condensate in the heating element can interfere with heat output and adversely affect capacity.

A Thermolier Unit Heater successfully handles this drainage problem with its pitched U-tubes and internal cooling leg, through which all the condensate passes. In fact, condensate cooling is so efficient with Grinnell Thermoliers that a thermostatic trap — the simplest and least expensive of all traps — can be used with every model. Condensate temperature is lowered to the point where the trap is always draining — giving Thermolier Unit Heaters their *continuous rated capacity*.

For further details, call your local Grinnell distributor — or send for catalog.

**GRINNELL**

THERMOLIER UNIT HEATERS

GRINNELL COMPANY, INC.
Executive Offices: Providence, Rhode Island
Sales Offices and Warehouses in Principal Cities

*If you write maker identify as* IEN - 11066

**THESE VALVES ... HAVE CURED A LOT OF MAINTENANCE HEADACHES because they**

**AUTOMATICALLY ADJUST FOR WEAR**

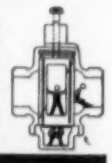
Wear, that in most valves would cause leakage and necessitate complete valve renewals, simply doesn't faze a HOMESTEAD-REISER. Its two-piece, wedge-acting plug constantly and automatically adjusts itself to make up for wear as wear occurs. The valve acts on its own. It is SELF-SEALD! Result: Extra long, leakless service life ... more operations between lubrications ... less maintenance ... lower plant operating costs. Available in semi-steel or cast steel; 100% port area or Venturi type; sizes ½" to 14" for steam working pressures to 150 lbs.; or oil ... water ... gas to 200 lbs.

Complete data and prices sent on request. Write today for VALVE REFERENCE BOOK No. 39. No obligation.

**HOMESTEAD**

VALVE MANUFACTURING COMPANY
"Serving Since 1892"
P. O. Box 85 Coraopolis, Pa.

HOMESTEAD-REISERS SEAL THEMSELVES
The wedge-action of the two-piece plug under line pressure, presses the plug outward against the body, keeping plug and body surfaces in contact at all times. This automatic adjustment for wear assures extra long life and maximum leakless service.



**HOMESTEAD-REISER**

*Self-Seald ... Lubricated*

**PLUG VALVES**

*If you write maker identify as* IEN - 11067

In **50 SECONDS** per unit ... **500** per day

***DY-NAMIC BALANCING***

**ENDS VIBRATION PROBLEMS!**

—acutal experience reported by washing machine manufacturer using model 375-BHD-R "Bear" machine.

Whether your problem is to cut down vibration, eliminate noise, reduce bearing wear or prevent mechanical failure, "Bear" Dy-Namic Balancing of rotating parts will improve performance of your product. Leading manufacturers, maintenance shops and others are using the "Bear" method with top-production results. No complicated manipulations to learn... average shop man can learn to balance within a few hours.

If your product contains rotating parts send for the **FREE DY-NAMIC BALANCING MANUAL.** Tells how you can quickly, easily, economically balance rotors, armatures, crankshafts and any other part that turns, weighing from 4 oz. to 8 tons! Your copy sent without obligation. Bear Mfg. Co., Dept 1-B, Rock Island, Ill.

415

**"BEAR"**

STATIC AND *DY-NAMIC BALANCING* MACHINES
balance rotating parts weighing from 4 oz. to 8 tons

*If you write maker identify as* IEN - 11068

**FURNITURE .. Work bench, steel, wood or plastic finished top**

Source: SHURE MFG. CO.
1603 S. Hanley Road, St. Louis 17, Mo.

**Immediate shipment from stock**

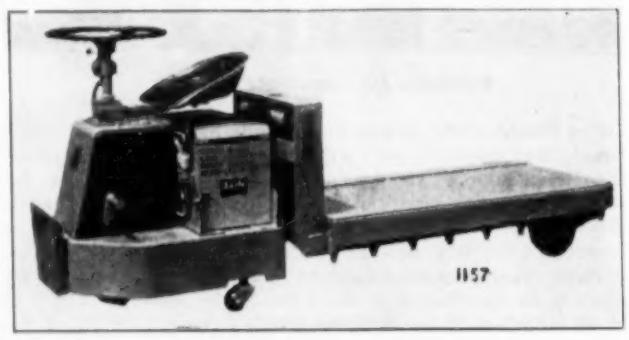
**Scotty** trade names the company's new line of steel work benches. The line includes 48, 60 and 72-in. lengths, 29, 30, 34 and 36-in. widths. Height is 34 inches. Standard finish is green with other colors to order. Drawers and accessories are available.

**Three tops** include one made of steel, a second made of 1¾-in. laminated wood and a third known as Nat-Flex. The latter unit consists of multiple layers of selected wood, pressure laminated and topped by a ¼-in. surface sealed plastic composition. It is non-conducting, resistant to oil, grease, water and abrasion. It deadens sound, minimizes vibration and can be kept clean without difficulty.

*If you write maker identify as* IEN - 11069

**TRUCK .. Motor driven skid lift for fragile materials to 2½ ton**

Source: MARKET FORGE CO.
27 Garvey St., Everett 49, Mass.




**Load-Mobile Skid Lift**

**The platform** on this new skid lift truck measures 60 in. in length by 31 in. in width. It stands 13 in. in height in lowered position. The truck has been designed to handle fragile materials such as green concrete blocks. It is equipped with automatically controlled four speed operation in forward and reverse to a maximum speed of about 3½ mph.

**The driving wheel,** at the front, measures 10½ in. in diameter by 7 in. in face width. It and the other support wheels are mounted on sealed ball bearings and are equipped with cushion rubber tires. The platform is spring suspended to deflect about 1 in. for cushioning action under load.

**Lift** is by power. Lowering is by gravity when a control valve is opened. The operator rides in seated position facing either forward or in reverse direction. He also can stand on a hinged front step. A storage battery or an engine driven generator can be specified.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER .. Descriptions .. Ratings .. See Page 50*

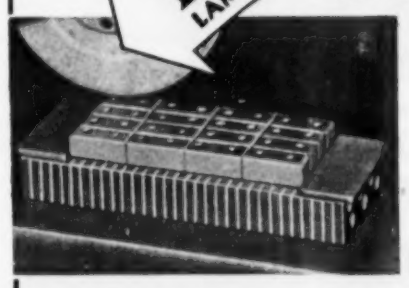
*If you write maker identify as* IEN - 11070

***SPEED SURFACE GRINDING SET-UPS WITH***

**MAGNE-BLOX**

LAMINATED PARALLELS and V BLOCKS

Ideal for small pieces and any odd shapes that cannot be put directly on the surface plate.



- SAVE YOUR MAGNETIC CHUCKS
- ELIMINATE CLAMPS
- ELIMINATE HOLDING DEVICES

**GRIND WORK SQUARE**

**GRIND WORK PARALLEL**

**HOLD ROUND PIECES**

**Universal set in Case** $22.25

**GEORGE SCHERR CO., Inc.**

COMPLETE LINE OF PRECISION INSTRUMENTS

**200-EN LAFAYETTE ST. • N.Y. 12, N.Y.**

*If you write maker identify as* IEN - 11071

***COOL TOOLS WORK BETTER, LONGER***

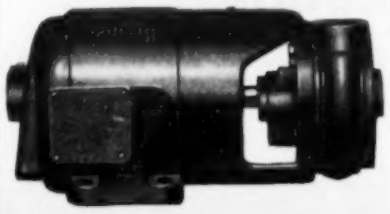
COOL TOOLS BEST WITH **"FULFLO"** TRADE MARK REG. U.S. PAT. OFF.

**CENTRIFUGAL COOLANT PUMPS**

**HOW TO KEEP TOOLS COOL!**

1. **Be sure you're using the right type of coolant.**
2. **Bring it to the right spot, pumped and circulated by the FULFLO PUMP designed for your purpose.**

*Write on your letterhead for personal copy of FULFLO MECHANICAL DATA BOOK. Please state if for PUMPS ... for VALVES ... or for BOTH.*



**MODEL AG3M**

**Motor-driven spring tension packing; replaceable pump shaft. ¼ hp. through Model AG7M-1 hp.**

**FULFLO** THE FULFLO SPECIALTIES CO. Inc.
BLANCHESTER, OHIO

*If you write maker identify as* IEN - 11072

*Increase Production ...*

**REDUCE FATIGUE***

*Durable Sponge Rubber*

**STANDING MATS**

*Fatigue robs you and your business! Long hours of standing, dampness and vibration take their daily toll of efficient help!

Production line workers, machine operators, store clerks, EVERYONE works better when using Durable Standing Mats. They're safe—the beveled edges prevent tripping, the corrugated top is non-slip! Factories, institutions and stores all over the nation have PROVEN the effectiveness of DURABLE SPONGE RUBBER STANDING MATS.

Available in all sizes up to 35 x 4-feet

***Write for free sample and current price list***

Durable RUBBER PRODUCTS CO.
549 WEST FULTON STREET
CHICAGO 6, ILLINOIS

*If you write maker identify as* IEN - 11073

*New* **"PULL-GEAR"**

**SPEED-REDUCING PULLEY**

**Increases Drill Press Capacity**

**NEW MODEL**

**Provides Correct Speed and Power to Drill Up to 1⅜" with ½ H. P. Motor.**

Amazing new internally geared speed reducer doubles drill press capacity. Greater power, greater efficiency, greater productivity.

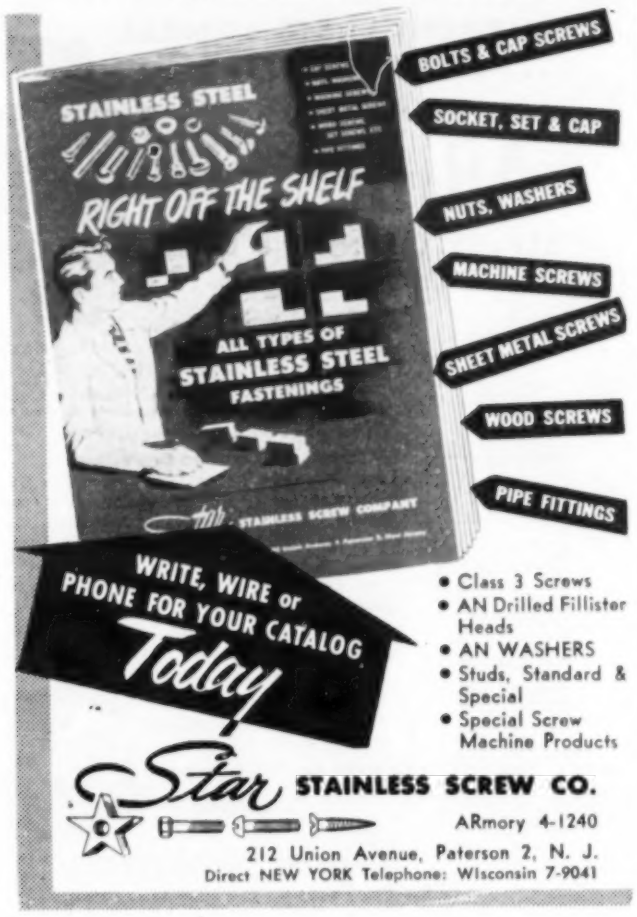
Provides the correct speed and power for larger drilling, reaming, tapping and boring on light presses. Easily installed in five minutes. Adaptable to all type machines. Spindle speed range approximately 45 to 3000 RPM. Made in 3 motor shaft sizes: ½"—⅝"—¾". Write for literature.

**Some Territories Open to Jobbers**

**THE PULL-GEAR CO.** WRITE FOR LITERATURE

4118 E. 8 Mile Road Detroit 34, Mich.

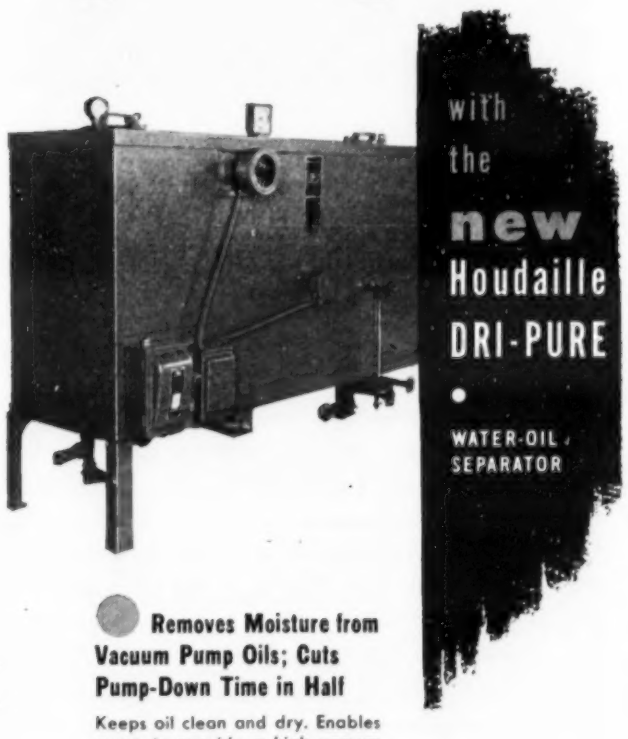
If you write maker identify as IEN - 11074




If you write maker identify as IEN - 11075

**cut pump-down time in half!**
**increase operating efficiency!**
**of....**

# Vacuum pumps




**Removes Moisture from Vacuum Pump Oils; Cuts Pump-Down Time in Half**

Keeps oil clean and dry. Enables pump to provide a high vacuum *without oil change* and eliminates pump "drying out" maintenance!

**Eliminates Changing or Discarding Oil; Allows Maximum Pump Operating Efficiency**

Increases production due to less downtime. Actually provides *2-way protection*—filtering out contaminants from oil as it separates water!

**DRI-PURE** is easy to install—can be hooked up to service one or more vacuum pumps depending on the application. *Quickly pays for itself in oil savings alone!*

***WRITE TODAY for complete information.***
***Equipment Bulletin available on request.***

**HONAN-CRANE CORPORATION**
802 Wabash Ave., Lebanon, Indiana
*a subsidiary of . . .*
**HOUDAILLE-HERSHEY CORPORATION**

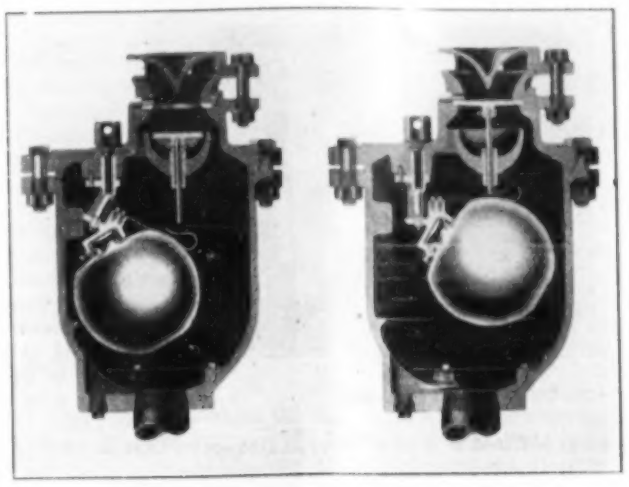
WORLD'S LEADING OIL FILTER MANUFACTURER

In Canada:
E. W. Playford, Ltd., Montreal 28
W. E. Micklethwaite, Toronto 18

If you write maker identify as IEN - 11077

## VALVE . . Float operated, vents air, breaks vacuum in a pipe line

**Source: SIMPLEX VALVE & METER CO.**
**6717 Upland St., Philadelphia 42, Pa.**



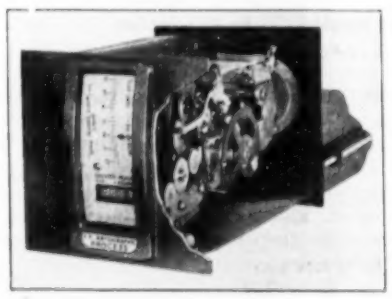
**Prevents air binding and stops vacuum**

**The ball float** in this new Type-AV valve operates two valves assembled in the bonnet. One is a small pilot unit, the other is for the main air flow. The float rises when water enters from the 2-in. threaded inlet at the bottom to close both valves after any air ahead of the water has been vented. The valve ports then remain closed until water level falls or vacuum occurs in the pipe line. At this point the float drops and the vent ports are opened. The valve is suited for working pressure to 150 pounds. Diameter is 11½ inches. Height is 16¼ inches. Weight of the new valve is 160 pounds.

If you write maker identify as IEN - 11078

## COUNTING . . Pneumatic integrator totals the flow rate of liquid or gas

**Source: FISCHER & PORTER CO.**
**15 Jacksonville Road, Hatboro, Pa.**



**Catalog 55-30**

**Ratographic** miniaturized integrator-indicator combines an indicating scale and five digit counter with a pneumatically actuated electrically timed mechanism. The new instrument is designed for graphic panel installation. It measures 6 by 6 in. in face dimensions and 14⅝ in. from front to back. Instantaneous flow rate is indicated on the vertical scale by a pointer attached to the integrator calibration cam.

**The pointer** and cam are positioned by a pneumatic receiver which operates at a signal pressure of 3 to 15 pounds. A synchronous motor drives the timing mechanism for 24 counts per minute. Position of the calibrating cam, determined by the pneumatic actuator, establishes the amount of integrator count on each operating cycle. The operating mechanism is oil immersed.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11079

A PAID NEWS ADVERTISEMENT BY CARBORUNDUM CO.

## FREE CATALOG . . . New Coated Abrasive Selector by CARBORUNDUM

**This new** "Coated Abrasive Selector for the Average Grinding Job" helps you choose the right coated abrasive for any machine or hand abrasive operation—on metals, non-metallics, or wood.

**The recommendations** given are complete—including grain sizes and types, backings, coatings, product sizes, prices and packaging information. Metalworking recommendations include coated abrasives for hand, portable and disc sanding; and for contact wheel, platen, and slack-of-belt machine grinding. Recommendations for roughing, polishing, and finishing glass and other non-metallic materials are also shown. For woodworking, coated abrasives are listed for hand sanding and finishing, and machine sanding with the following types of sanders: oscillating, flat belt, edge, turning, moulding, drum, disc, and others.

**A special section** lists contact wheels—both solid and universal hub, serrated and plain. The "61" Port-A-Belt grinding attachments are also described fully. In addition, you will find a list of machine manufacturers—giving machine model numbers and belt sizes.

**It's free!** Get this handy catalog today. Write to Dept. IEN 82-310.

*"Carborundum" and "Port-A-Belt" are trademarks of The Carborundum Company, Niagara Falls, New York*

82-310

**THE CARBORUNDUM COMPANY**
**Niagara Falls, New York**

If you write maker identify as IEN - 11080

THE HAMILTON

# PORTELVATOR®

(Portable Elevating Table)

**MAKES IT *Easy* TO LIFT • LOWER LEVEL • TRANSPORT LOADS UP TO 5,000 lbs.**

**3 TABLE SURFACES**
Can be worked at from **ALL 4 SIDES**

Slow or fast lift.

Self locking at any height.

**4 POINT SUPPORT**
(table can't tip)

Lift mechanism can be operated from either end.

Turns easily on anti-friction casters. Positive floor lock.

**WELDED CONSTRUCTION**

STYLE "A" (Illustrated)*
Max. Height 40" Min. Height 25" Length 33" Width 21" Weight 225 lbs.
Capacity 2,000 lbs. (plus safety factor)

*THREE STANDARD MODELS TO CHOOSE FROM

**GET THE DETAILS • WRITE FOR BULLETIN P-5248**

THE Hamilton TOOL COMPANY
905 HANOVER STREET • HAMILTON • OHIO • U • S • A

If you write maker identify as IEN - 11081

## Not when you use KIMPAK*301!

New KIMPAK 301 is the practical solution to appliance surface scratching and other marring damage. KIMPAK 301's ability to shield the fine finish from abrasive high spots on the inner walls of cartons and blocking and bracing members of crates makes it the ideal protective agent in an appliance package. And KIMPAK 301 costs no more than ordinary materials. It is specially designed to prevent the three major causes of scratching:

**1. Abrasiveness of the inner spacers.** KIMPAK 301 provides a scratch-free, non-disintegrating, compressible barrier between inner spacers and the appliance finish. Its conformability ensures a snug package.

**2. Dust, dirt, cinders that sift into the container.** The combination of high creping and porous structure—exclusive with KIMPAK—traps dirt, grit or cinders, which may lodge between the packaging material and the surface.

**3. Abrasive action of harsh packaging materials.** KIMPAK 301 is soft and non-abrasive . . . free from wood splinters, dirt and other abrasive materials. No lumps, hard glue spots or stiff wrinkles.

Scratching is but *one* of many problems encountered in appliance packaging. These problems are solved with KIMPAK 301. For more details, contact the KIMPAK distributor in your area, or mail coupon below.

**SPECIFY KIMPAK 301 TO SOLVE THESE INTERIOR PACKAGING PROBLEMS:**

- Scratching
- Pressure-marking
- Staining
- Corrosion
- Conformability
- Ease of handling
- Appearance
- Disintegration

**Whatever your protective interior packaging requirements, there is a Kimpak specification that does the job . . . better!**

KIMPAK INTERIOR PACKAGING
*T. M. REG. U. S. & FOREIGN COUNTRIES

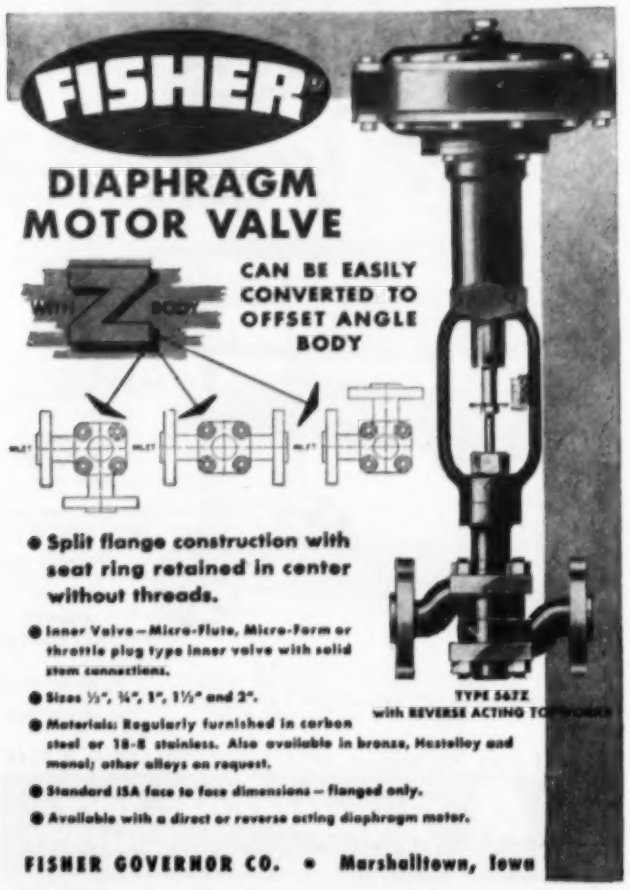
A Product of **Kimberly-Clark**

KIMBERLY-CLARK CORPORATION Dept. IEN-103
Neenah, Wisconsin

We would like to learn how new KIMPAK 301 can provide better protection at lower cost for our products. Please send complete information.

*Name* .....
*Firm Name* .....
*Street Address* .....
*City* ..... *Zone* ..... *State* .....

*If you write maker identify as* IEN - 11083




- Split flange construction with seat ring retained in center without threads.
- Inner Valve—Micro-Flute, Micro-Form or throttle plug type inner valve with solid stem connections.
- Sizes ½", ¾", 1", 1½" and 2".
- Materials: Regularly furnished in carbon steel or 18-8 stainless. Also available in bronze, Hastelloy and monel; other alloys on request.
- Standard ISA face to face dimensions—flanged only.
- Available with a direct or reverse acting diaphragm motor.

**FISHER GOVERNOR CO. • Marshalltown, Iowa**

*If you write maker identify as* IEN - 11084

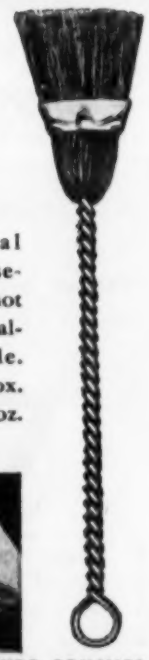
**General Box COMPANY**
1815 Miner Street
Des Plaines, Illinois

Factories: Cincinnati; Denville, N. J.; Detroit, East St. Louis, Kansas City, Louisville, Milwaukee; Prescott, Ark.; Sheboygan; Winchendon Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston.

*If you write maker identify as* IEN - 11085

## *Mechanic's Chip Brush*

- Improved Design
- More Efficient
- Longer Lived
- Acid Resistant
- Alkali Resistant
- Lower Priced



● Genuine natural horsehair bristles securely locked, cannot pull out. 12 gauge galvanized wire handle. Packed 2 doz. per box. Price, $3.00 per doz. F.O.B. Rockford.

CLEANING T-SLOTS
APPLYING COOLANT
WRITE FOR CATALOG SHEET

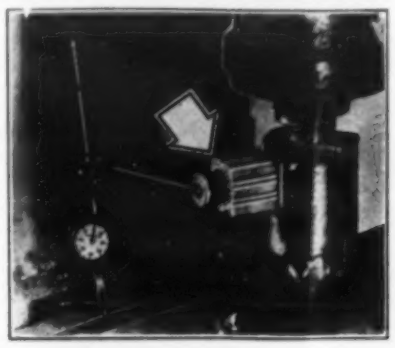
STANDARD AND SPECIAL TWISTED-IN-WIRE BRUSHES
—ONE BRUSH OR A CARLOAD—

SEE YOUR MILL SUPPLY DEALER OR WRITE
**Bilwell Brush Co.**
225 S. CHURCH ST. • ROCKFORD, ILLINOIS

*If you write maker identify as* IEN - 11086

## MAGNET . . Permanent magnet base and arm to position gage on a machine

Source: ENCO MFG. CO.
4520 W. Fullerton Ave., Chicago 39, Ill.



65 pound pull

**Tiny-Titan No. 100** designates new design of the company's permanent magnet base, extension arm and fittings, previously described IEN-11436-52 under the trade name Miti-Mite. The new assembly employs a Tenite plastic housing measuring about 1¼ by 1½ by 1½ inches. The plastic is ribbed on its four side surfaces for grip.

**It is fitted** with steel parallel ribs on its base to provide the magnetic contact surface. On the opposite face is a brass ball swivel and a non-magnetic metal stem to isolate the magnet from the fittings and gages that it has been designed to position on a machine. List price, including a rod and swivel adapter, is $8.

*If you write maker identify as* IEN - 11087

## CONDUIT . . Threaded rigid steel with smooth aluminum enamel interior

Source: NATIONAL ELECTRIC PRODUCTS CORP.
140 Stanwix St., Pittsburgh 22, Pa.

10 foot lengths, ½ to 2½ inches

**Xduct Junior** is a new companion conduit to the one previously described IEN-9782-53. The inner surface is coated with aluminum enamel, baked in place, to minimize friction when fishing wires and cables through the conduit bore. The exterior is electro galvanized in a brightening process that provides first class corrosion resistance and a metallic finish resembling stainless steel. The conduit bends readily and, when properly bent, will not flatten or spring back. The galvanized surface and the interior coating remain intact.

*If you write maker identify as* IEN - 11088

**Oil tightness** can be guaranteed for aluminum and magnesium engine castings at Pratt & Whitney when they come out of the new vacuum impregnating process the company has installed. This process employs 1,500-gal. autoclaves to take castings to 80 in. in diameter and subject them to 28-in. vacuum. At the same time solventless No. 3255 Permafil liquid, manufactured by General Electric Co., 101 Plastics Ave., Pittsfield, Mass., is introduced. It fills any pores. A final baking process cures the absorbed liquid into a hard infusible mass that fills every pore.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11089

## FASTER, SAFER LOADING

## New adjustable hydraulic ramp for loading docks

The new Leva-Dock Ramp travels up or down automatically to keep on the level with vehicle bed. Thus you can quickly load and unload trucks and trailers without using loose plates, bridge ramps or other slow and dangerous methods. This hydraulic ramp compensates 4 ways for varying truck bed heights, out-of-level trucks and spring deflection. An automatic safety device prevents accidents.

The Leva-Dock is powered by a dependable hydraulic jack and power unit. Simple to install, inexpensive to operate.

*WRITE FOR CATALOG RE-402*

**Rotary Leva-Dock® Ramps**

**Rotary Lift Co., 1083 Kentucky, Memphis 2, Tenn.**

*If you write maker identify as* IEN - 11090

## EQUIPMENT LASTS LONGER . . . PERFORMS BETTER . . . when the ARIDIFIER

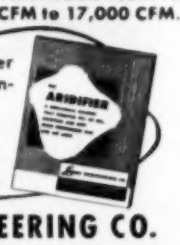
SCRUBS, CLEANS AND DRIES On Air and Gas Lines

**LASTS LONGER because . . .**
The Aridifier's patented centrifugal-baffle action traps 92% of all dirt, oil, scale and water in gas or compressed air . . . and drains off these troublemakers *before* they can damage tools and equipment.

**PERFORMS BETTER because . . .**
The Aridifier protects tools against the freezing, fouling, caking and corrosion caused by dirt and foreign matter . . . assures the clean, dry air and gas that means better spray work, painting, lacquering, sand blasting, air cleaning, and similar operations.

**Easily installed, the Aridifier maintains itself. 10 models. Capacity range; 7 CFM to 17,000 CFM.**

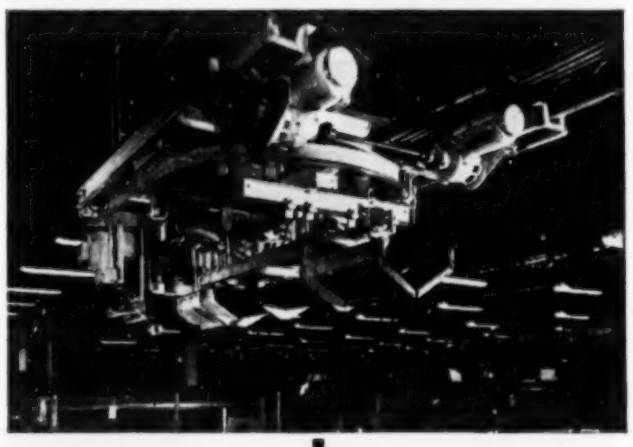
Learn HOW the Aridifier scrubs with a patented centrifugal-baffle action.
**Write for This Catalog Now!**



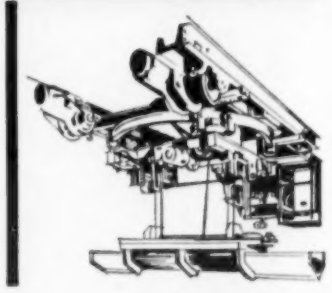
**Logan ENGINEERING CO.**
4902 W. Lawrence Ave., Chicago 30, Ill.

*If you write maker identify as* IEN - 11091

## INCREASES FLOOR CAPACITY 50%



OVERHEAD MONORAIL SYSTEM PERMITS INSTALLATION OF 50% MORE SCREW MACHINES —WITHOUT EXTRA BUILDING



A large manufacturer of farm implements solved "expansion pains" in the automatic machine department by installing a Louden Monorail System to handle bar stock.

In addition to increasing by 50% the number of machines in the same floor area, the labor force in this department was cut from 9 men to three men.

"Down time" from shortage of raw stock has been virtually eliminated, since the carrier cab is in continuous telephone contact with a dispatcher, who directs the supply of bars to machines.

All functions are motor driven and controlled from the cab. The hoist can be rotated 90° to permit accurate positioning of the stock in the machine racks.

**FREE ILLUSTRATED BOOK**
Case histories telling how Louden Monorail Systems have saved time and money for widely different kinds of industries are described and pictured in a new book called, "Economical Material Handling". Write for your copy.

**THE LOUDEN MACHINERY COMPANY**
7112 S. Superior Ave., Fairfield, Iowa

**Louden**
OVERHEAD MATERIAL HANDLING

*If you write maker identify as* IEN - 11093

ONLY

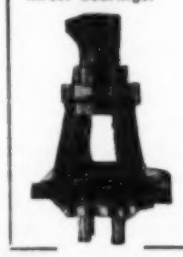
**THRIFTMASTER** *Universal Joint Type* **DRILL HEADS**

have these exclusive* features

**6 Standard Models**
Models U-608 and U-1000—Ball Bearing
Models U-620B and U-1012B—Plain Bearings, 11/16" or ½" min. centers.
Models U-608-BS and U-1000-BS—Ball Bearing Gear Case, Plain Spindles

**Semi-Standard Heavy Duty Full Ball Bearing**
½" in Cast Iron—17/16" min. centers 7⅛" or 9⅜" dia.
½" in Steel—1 13/16" min. centers 7" or 9⅝" Dia.
Also Larger Adaptations and Full Line of Fixed Center Drill Heads.

**• Standard Full Ball Bearing Construction, including Spindles.**
Driving assembly in *Full Ball Bearing* mounted with 3 Bearings on each spindle. Thrust load carried by radial thrust bearings.



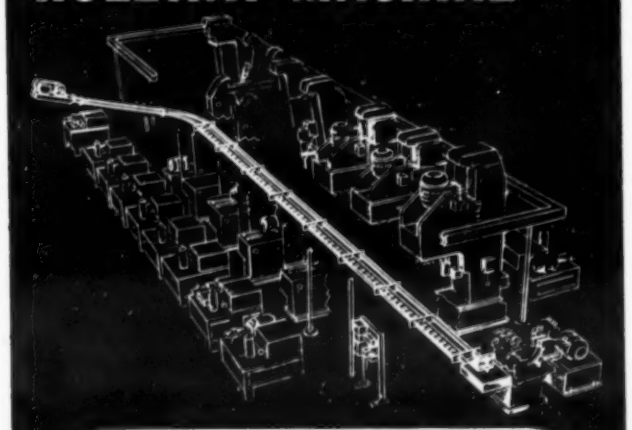
**• Standard Slip-On and Slip-Off Template Construction**
For accurate setting and locating spindle brackets are machined to receive slip-on and slip-off template.

WRITE FOR FULL INFORMATION

**THRIFTMASTER** *Products Corporation*
Subsidiary of Thomson Industries, Inc.
1040 N. Plum Street, Lancaster, Penna.
*Also Makers of*
DORMAN AUTOMATIC REVERSE TAPPERS

*If you write maker identify as* IEN - 11094

# NATCO selects HAPMAN TUBULAR CONVEYOR TO REMOVE ALL CHIPS from 98-operation HOLEWAY MACHINE



**AUTOMATIC CHIP REMOVAL IS ESSENTIAL** while this machine mills, trepans, drills, counterbores, reams and chamfers a cylinder block every 1.1 minutes!

**SO NATIONAL AUTOMATIC TOOL CO. SELECTED A HAPMAN** Tubular Conveyor as an original component for the unit. With its Neoprene Flights and patented Sealed-Pin Chain, this Conveyor provides the engineering excellence required for such an important investment.

**HAPMAN CONVEYORS CAN DO THE JOB** on many of *your* machine tools, sludge tanks and other equipment too! On new machines—or added to existing equipment—they'll convey almost any bulk flowable material in your plant at big savings!

Conveyor cross-section shows Flights and Sealed Pin Chain.

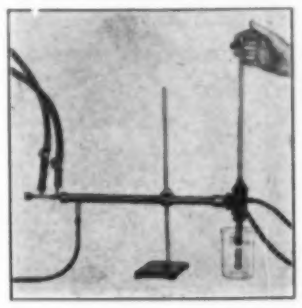
**GET FULL DETAILS. WRITE FOR BULLETIN IN-1053**

**Hapman** CONVEYORS, INC.
DIVISION HAPMAN-DUTTON COMPANY
KALAMAZOO MICHIGAN

*If you write maker identify as* IEN - 11096

## HEATING . . Laboratory burner burns gas in a submerging head

**Source: SUBMERGED COMBUSTION CO.**
**757-61 Logan St., Hammond, Ind.**



**For test application**

New burner is designed along the same lines as the company's submerged equipment for plant use in which flammable gases and air for combustion are introduced into a head where combustion takes place. This head can be submerged in a liquid to increase the liquid temperature. The burner is controlled by regulating the flame size. Output capacity ranges from 1,000 to 40,000 btu. per hour. A thermometer well in the reaction tee, on which the head applies, permits readings during a test. The burner will concentrate acid and alkali solutions, generate steam, perform pilot operations. It operates at pressures to 25 lb. and will burn any flammable gas, including hydrogen sulphide.

*If you write maker identify as* IEN - 11097

## WELDING . . Arc electrodes to join and to overlay alloy steels

**Source: EUTECTIC WELDING ALLOYS CORP.**
**40-42 172nd St., Dept. P, Flushing 58, N. Y.**

**Strong and rust resistant**

**EutecTrode 69AC** and 690-DC are new arc electrodes to join light sections of low and medium alloy steels and certain stainless steels. The electrodes will join stainless steels in architectural assemblies. They will weld low alloy high strength steels employed in railroad cars and trucks. They will produce protective overlays resistant to heat and wear in building up worn alloy steel shafting and in repairing clutch and brake friction discs or plates. Sizes are 3/32, 1/8, 5/32 inch.

*If you write maker identify as* IEN - 11098

## WASHROOMS . . Hot air blower replaces towels to dry hands and face

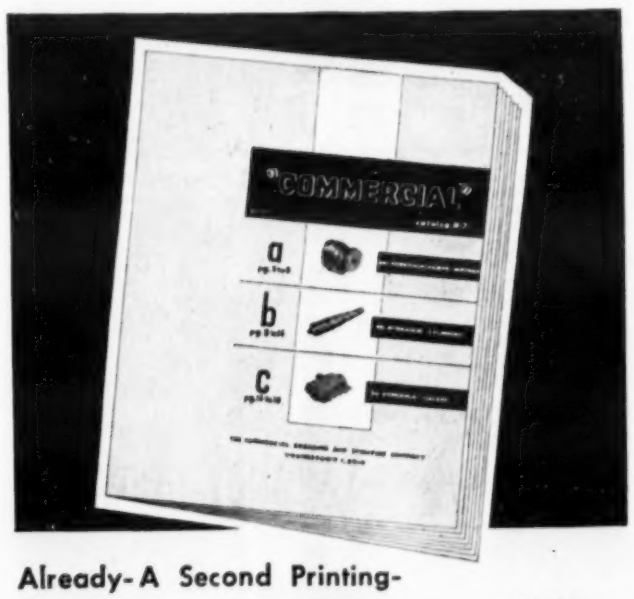
**Source: NATIONAL DRYER CORP.**
**614-18 W. Adams St., Chicago 6, Ill.**

**UL Approved**

**Timer controlled** blower motor and electric heating element are energized for a 30-sec. interval upon pressing a button on the housing face of this new dryer. Heated air issues from a nozzle that can be rotated to blow downward or upward. The housing is made of rust proof castings with porcelain enamel finish. Other parts are plated. The improved design employs a new double squirrel cage Torrington fan rotor that minimizes the need for cleaning. The fan discharges 100 cfm. at 135 deg. F. in a 72 deg. F. room. List price is about $143.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11099




Already-A Second Printing-

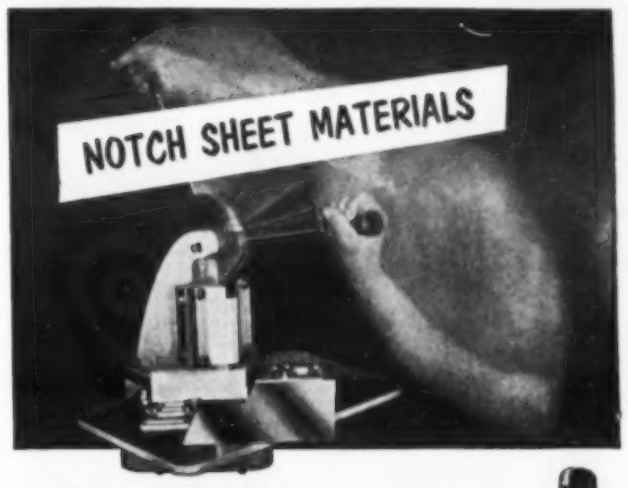
heavy duty **COMMERCIAL HYDRAULIC** *Fluid Power Controls*

PUMPS-MOTORS-VALVES-CYLINDERS

ASK FOR YOUR COPY OF CATALOG H-7, SECOND PRINTING

THE "COMMERCIAL" SHEARING AND STAMPING COMPANY
YOUNGSTOWN, OHIO · CHICAGO, ILL. · SALT LAKE CITY, UTAH

*If you write maker identify as* IEN - 11100




*Quickly, Easily with a*

## DI-ACRO* NOTCHER

Speed up notching operations, eliminate the need for heavy presses and dies. A 6"x6" notch is made in 16 gauge material in one operation. Also perform many shearing jobs.

**NEW DI-ACRO POWER NOTCHER**

Especially designed for operations where a high rate of production must be maintained. Motor driven flywheel and all moving parts housed in welded steel cabinet.

**WANT MORE INFORMATION?**
*Send for 32-Page Catalog*
*pronounced DIE-ACK-RO
Creators of "DIE-LESS DUPLICATING"

di-acro PRECISION METALWORKING MACHINES

**O'NEIL-IRWIN MANUFACTURING CO.**
718 8th Avenue, Lake City, Minn.

*If you write maker identify as* IEN - 11101

BARBER COLMAN **Wheelco Instruments**

**for completely automatic time-temperature program control**

**CHRONOTROLS**

**Example—typical program disc**
**One revolution per 24 hour cycle**

HEAT 100° F. per hour to 1400° F.
SOAK 3 hours at 1400° F.
COOL 200° F. per hour to room temperature

HERE'S HOW IT WORKS!

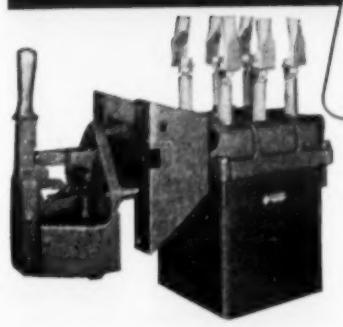
Save time and manpower . . . improve product uniformity by controlling time-temperature heating cycles automatically with Wheelco Chronotrols. Whatever your program specifications for chemical, ceramic or metal processing jobs . . . special program discs in the Chronotrol automatically give exact heating and cooling temperature, desired process time. After start, program is maintained without supervision or adjustment. Wheelco's "no-contact" system assures instant response to all temperature changes. Many economies in equipment, operation and maintenance. Wide selection of programs . . . range 4 hours to 7 days. Write for Bulletin CH-2.

*Factory-trained field engineers in all principal cities*
WHEELCO INSTRUMENTS DIVISION • BARBER-COLMAN COMPANY
Dept. J, 1516 Rock St., Rockford, Illinois

*If you write maker identify as* IEN - 11102

# Full Protection for Industrial Electric Service

**ALLIS-CHALMERS INDOOR OIL CIRCUIT BREAKERS**



**Type E-47 oil circuit breaker rated 4160 volts, 600 amp, 25,000 kva interrupting capacity.**

A COMPLETE LINE of indoor oil circuit breakers for 2300 to 13,800-volt service, up to 500,000 kva interrupting capacity is offered by Allis-Chalmers. These circuit breakers combine simplicity of design with reliability of performance. Each breaker is thoroughly tested before shipment. You can choose from a variety of mountings and accessories for automatic or manual operation.

Get complete information on the breaker for your requirements from your nearest A-C sales office, or write Allis-Chalmers, Milwaukee 1, Wisconsin.

A-3630

**ALLIS-CHALMERS**

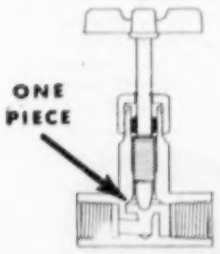
If you write maker identify as IEN - 11103

# New MARSH Needle Valves

MAXIMUM WORKING PRESSURE 10,000 PSI

**. . . for finer regulation of water, oil or gas**

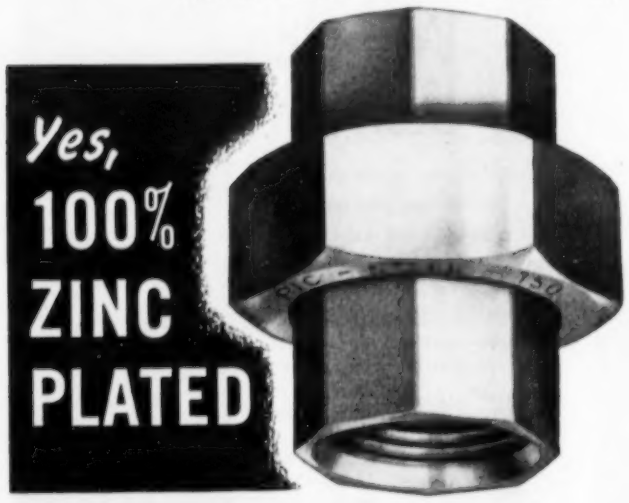
First needle valve to combine all the characteristics called for in modern industry. Embodies sturdiest basic construction—machined from solid bar stock—suitable for pressures to 10,000 psi and equally efficient in lower range. Note stem guide fused to body by new "Conoweld" process, eliminating faults of conventional two-piece valves. Stem 416 stainless steel. Stem threads fine pitch for strength and micrometer regulation. Body electro-zinc plated. Sizes ⅛" to 1", globe and angle patterns.




***Ask for new Needle Valve Catalog***

**MARSH INSTRUMENT CO.** *Sales affiliate of Jas. P. Marsh Corporation*
Dept. A, Skokie, Ill.

If you write maker identify as IEN - 11104



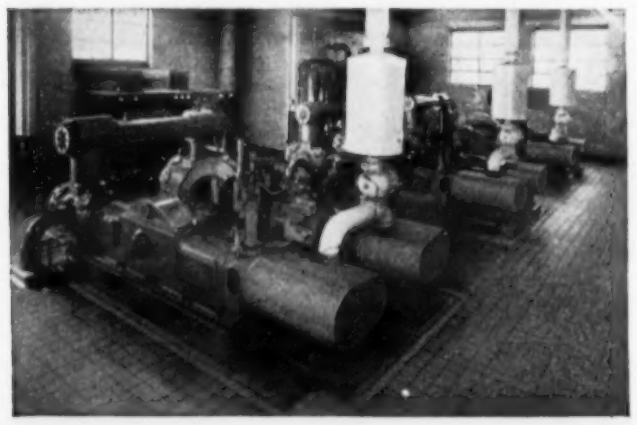

## PIC STEEL UNIONS*

Rust can't get a foothold on these bright, cheerful-looking unions that blend so well with original equipment. Even the threads are zinc plated. Pics install speedily with open end wrenches — ends are uniformly flat-sided, uniformly parallel. They're strong too — of heavy steel pipe coupling stock. Special wedge type bronze seat for tight security. Pics are a "buy" price-wise also — they cost *less* than a galvanized, no more than a black malleable union.

*For 150 # Service — Write for FREE Samples

**DART UNION COMPANY**
130 THURBERS AVENUE, PROVIDENCE 5, R. I.

If you write maker identify as IEN - 11105



## putting STEAM to work

Chicago Pneumatic's horizontal duplex, Class H steam-driven compressor brings real operating economies to plants where low cost steam or exhaust steam is available. Economical steam end proportioned to plants' steam conditions, automatic cutoff governor, and Simplate valves are just a few of the many features that add to the machine's long life and high efficiency.

Capacities from 900 to 7400 cfm. (100-125 lb. air, 200 to 1250 hp). Other types and sizes available for lower and higher pressures. *Chicago Pneumatic Tool Company, 8 East 44th Street, N. Y. 17, N. Y.*

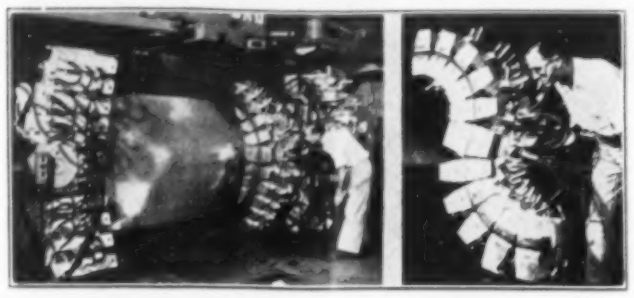
**Chicago Pneumatic**

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

If you write maker identify as IEN - 11106

## BENDING . . Flexible jaw assembly holds work on stretch forming machine

Source: HUFFORD MACHINE WORKS INC.
1702 E. Grand Ave., El Segundo, Calif.



**Ask for illustrated Hydra-Curve literature**

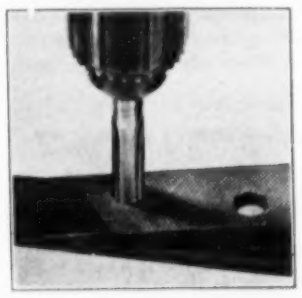
**Individual segments,** each with a set of hydraulic grippers, are hinged together with pivot pins in this new Hydra-Curve Jaw assembly. The segments can be positioned to form a convex, concave or complex curve to hold work on a stretch forming machine. A typical assembly, convex at one end and concave at the other, is shown to the left in the illustration.

**The assembly** minimizes need for work material beyond the ends of the die. It permits forming deep curves. A good many aluminum parts can be formed without need for preliminary heating and cooling. The degree of curvature is determined by adjustable set screws. Sizes are available for any of the company's stretch forming machines. They can be made to order for machines of other designs.

If you write maker identify as IEN - 11107

## DRILLING . . Three lip drill designed to cut through hardened steel

Source: TEMPERED STEEL DRILL CO.
3608-12 Superior Ave., Cleveland 14, Ohio



**Do not use oil**

**Finished work,** that has been hardened to 68 on the Rockwell scale, can be drilled with this recently improved Tempered Steel drill. Improvement centers in the three wide lands to keep the drill from floating. The center section also has been made heavier than in previous designs by the company.

**Application** can be made in any standard drilling machine. In addition to drilling new holes, the tool can be employed to countersink, ream, and enlarge holes made prior to hardening. Sizes are ⅛ to 1 inch. Standard units, from ½ to 1 in., will drill to 3 in. in depth. List price is $5.25 for the ⅛-in. drill. It is $11 for the ½-in. size.

If you write maker identify as IEN - 11108

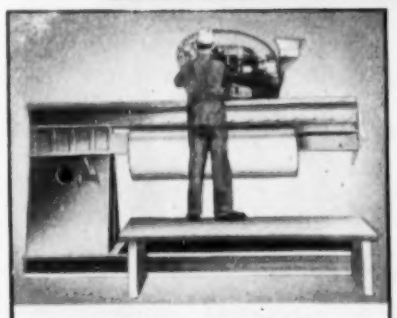
**Liquid plastics,** for spray application, are being packaged in a new pressurized explosion proof container by Acrolite-International, 10-14 Hollywood Ave., Hillside 5, N. J. The spray issues for application on wood, metal, paper, upon pressing a button on the container. A safety valve releases pressure to prevent explosion, due to overpressure, if the container is accidentally exposed to excessive heat.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11109

# REED ENGINEERING COMPANY

**Modern Metalworking Equipment**



**HORN TYPE WELDING JIGS**

- In 6 models; capacities up to 9 ft. x ⅜ inch
- In 2 styles for light or heavy shells
- Water-cooled copper weld backing bars
- Positive, rigid, toggle-action clamping
- Track for any automatic welding head

- BENDING ROLLS
- TURNING ROLLS
- AUTOMATIC WELDING FIXTURES

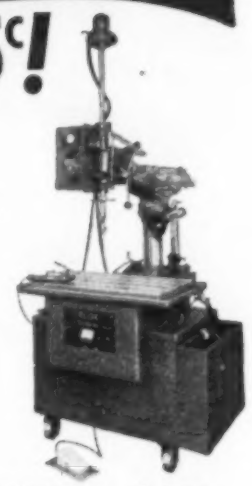
*WE INVITE YOU . . .* to write us for specifications, prices, list of REED users near you. No obligation. Just write on your letterhead.

**REED ENGINEERING CO.** 1009 W. FAIRVIEW CARTHAGE, MO.

If you write maker identify as IEN - 11110

# You can salvage Valuable Parts- —FOR LESS THAN 25¢!

*Including Labor, Materials, Burden*



Elox Electron Drills* are production machines designed for fast removal of broken taps, drills, studs, etc., without harm to thread or wall, sticking or welding. Most units are completely self-contained, easily transported and come ready to plug in. As simple to operate as any drill press, Elox Electron Drills* are an insurance against loss of time, money and materials. Throughout the world, Elox machines salvage millions of dollars of work each year. Check your scrap today. There's an Elox Electron Drill* priced for any industrial requirement. Write today.

**ELOX** CORPORATION OF MICHIGAN
CLAWSON, MICH.
724 N. Rochester Road

If you write maker identify as IEN - 11111

## INDIVIDUAL VULCANAIRE DUST COLLECTING UNITS

Are used on surface and other grinders where grinding dust must be removed.

Inexpensive, compact units, with no moving parts. Operated from your present air supply.

Installed in a few minutes, eliminating need for costly centrally located dust collecting systems.

The collector element is mounted on the side of the machine. Quickly cleaned, requiring no refills.

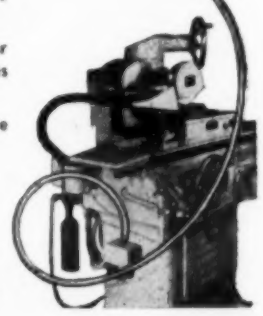
Vac-suction pick-up device (vacuum nozzle) is mounted on the grinding wheel guard or close to grinding wheel on other applications. This mounting permits constant contact with dust as the wheel is moved up or down.

A simple needle valve operates the unit, and can be shut off whenever the machine is not in use.

Available in two sizes: 700 series for grinding wheels 7" dia. or less—200 series for wheels 2" dia. or less.

Made by the makers of Vulcanaire *The* jig grinding attachment.

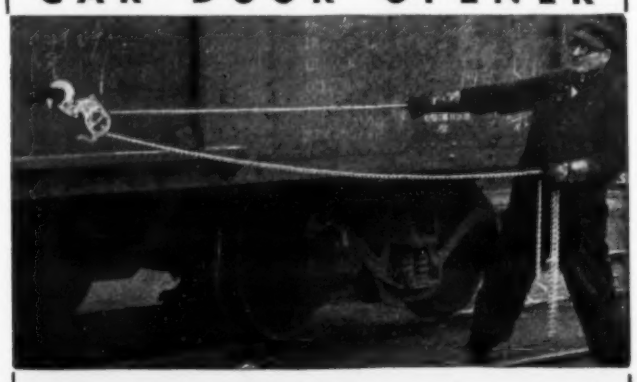
*Write on your letterhead for "Dust Collector" Booklet.*



**VULCAN TOOL CO.**
734 LORAIN ST., DAYTON 10, OHIO

If you write maker identify as IEN - 11112

# NOLAN ONE-MAN CAR DOOR OPENER



*Opens Doors in 20 seconds or less!*

The Nolan Car Door Opener gives one man a tremendous amount of pulling energy, to get the most stubborn, hard-rolling door wide open in a hurry! New chain has 2000 lbs. tensile strength.

No gangs needed. No mangled limbs or loss of life. A few quick pulls on anchor chain gets any door open in a jiffy. The NOLAN saves its low initial cost in first hour of operation.

New safety features make the Nolan 1-Man Car Door Opener a more necessary labor-saving, money-saving help than ever before.

MANY THOUSANDS IN CONSTANT DAILY USE! FREE LITERATURE.

Order one or more NOLAN Model-H Car Door Openers now. Catalog on request.

**$37.50** F.O.B. Bowerston

THE NOLAN COMPANY • 114-C Pennsylvania St., Bowerston, Ohio

If you write maker identify as IEN - 11113

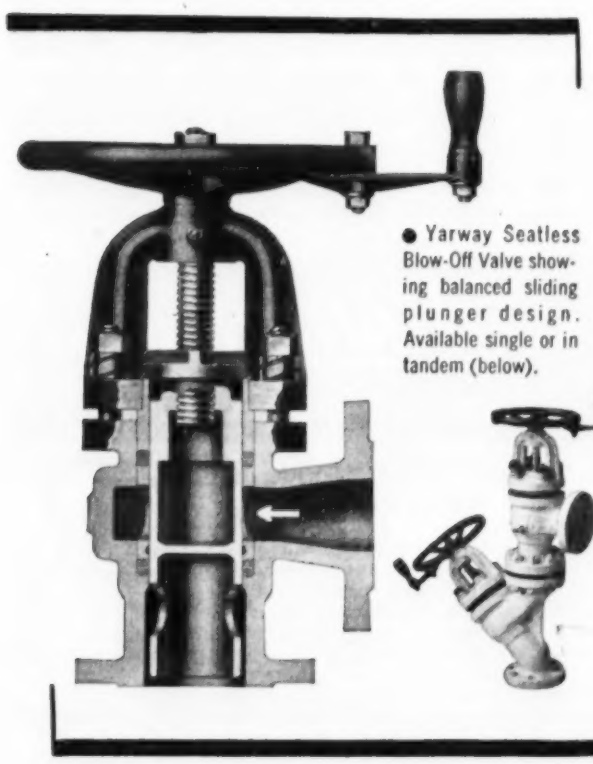
If you write maker identify as IEN - 11114

# KEEPS BOILER BLOW-DOWN LINES *DROP TIGHT*

Yarway Seatless Blow-Off Valves keep blow-down lines *drop tight* because *there is no seat to score, wear, clog or leak.*

The well-known balanced sliding plunger design—combined with the newest metallurgical developments—make Yarway Seatless Blow-Off Valves rate top efficiency for low and medium pressure boiler plants.

Among high pressure plants, Yarway Unit Tandem Valves are used by more than 4 out of 5.



● Yarway Seatless Blow-Off Valve showing balanced sliding plunger design. Available single or in tandem (below).

If you operate a boiler, be sure to send for the Yarway Blow-Off Valve Books—Bulletin B-426 for pressures to 400 psi or Bulletin B-433 for higher pressures to 2500 psi. Write . . .

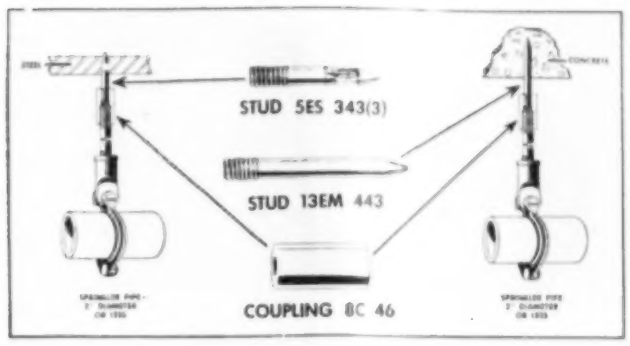
**YARNALL-WARING COMPANY**
122 Mermaid Avenue, Philadelphia 18, Pa.
BRANCH OFFICES IN PRINCIPAL CITIES

**YARWAY** blow-off valves

If you write maker identify as IEN - 11116

## FASTENING . . Steel anchor studs driven by cartridge in portable tool

**Source: REMINGTON ARMS CO.**
**751 Barnum Ave., Bridgeport 2, Conn.**




**Fast economical pipe installation**

**Two new studs** have been added to the company's line for use in its Model-450 stud driver, previously described IEN-6552-53. The studs are listed and approved by Underwriters' Laboratories, Inc., to hang sprinkler pipe in sizes to 2 inches. A ¼-in. to ⅜-in. coupling, No. 8C-46, also approved, is available to connect standard ⅜-in. threaded pipe hangers to the new studs.

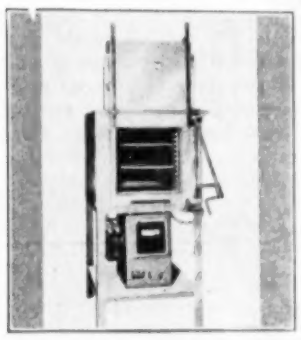
**Stud 5ES 343(3)** penetrates through steel. Stud 13EM 443 drives into concrete. Both are shown in the illustration. The tool employs a gun powder charge in a 32 caliber cartridge to drive the hardened steel stud. The action replaces drilling and stud setting by conventional means. Maximum penetration is to ¾ in. in mild steel.

**The cartridges** are color coded to indicate the strength of the charge. A recess in the end of a plastic plug in each cartridge receives the stud. This plug is expelled with the stud and protects the external stud threads from damage in the firing action.

If you write maker identify as IEN - 11117

## HEAT TREATING . . Electric furnace circulates air, 300 to 1,350 deg. F.

**Source: BLUE M ELECTRIC CO.**
**304-10 W. 69th St., Chicago 21, Ill.**



**Crank slides door**

**Recirculating** air, from a blower in the rear wall of this new air draw furnace, moves to the front along both sides of the heating chamber. The air passes between Modella electric heating elements and radiant heat shields toward the door seal face to prevent cold air inlet leakage. Then it sweeps toward the back passing over and under the work to the rear recirculating inlet.

**Two models** measure 12 by 24 by 12 in. and 15 by 24 by 18 inches. They operate on 220 or 440-volt ac. to specification. Both are equipped with an electronic indicator and controller actuated by a thermocouple. Triple side walls include 6 in. of firebrick and Therm-O-Block. The inner chamber is stainless steel. The outer housing is reinforced steel. The electrical equipment is UL approved.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11118

## Here's why it pays to use BRISTOL'S SOCKET CAP SCREWS

- easier, faster setting for speedy assembly
- greater holding power, shock and vibration-resistance
- they permit more compact design, with smooth, flush surfaces for safety and streamlining

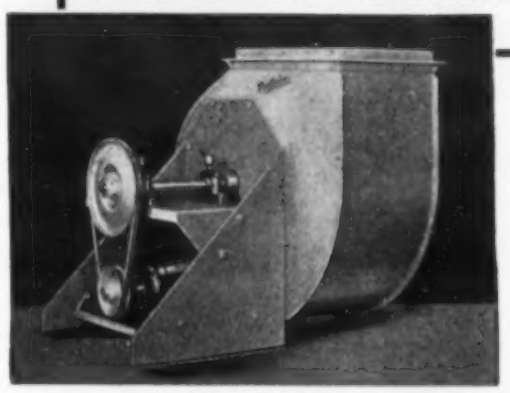
No delivery problem—adequate stock is always on hand to fill orders without delay. Write today for your free copy of Bristol's 40-page socket screw catalog. A.3.7

**BRISTOL'S SOCKET SCREWS**

THE BRISTOL COMPANY, Socket Screw Division, Waterbury 20, Conn.

If you write maker identify as IEN - 11119

*For Light-Duty Ventilation*
## THERE'S NO MORE PRACTICAL FAN



*500 cfm to 20,000 at ¼" s.p.*

"Buffalo"

## BELTED VENT SET

It's light—requires no expensive foundation—can be installed indoors or outdoors—cannot be overloaded, regardless of system pressure—and its capacity may be easily changed on the job by simple sheave changes. Also, it's highly efficient and very quiet with its specially shaped housing scroll and dynamically balanced rotor. You couldn't find a more satisfactory and practical fan for your light-duty ventilation, up to 20,000 cfm! WRITE FOR DETAILS!

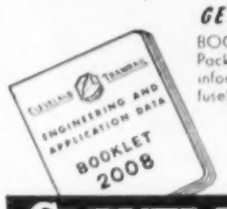
**BUFFALO FORGE COMPANY**
496 Broadway Buffalo, N. Y.
Publishers of "FAN ENGINEERING" HANDBOOK
Canadian Blower & Forge Co., Ltd., Kitchener, Ontario
Sales Representatives in all Principal Cities

If you write maker identify as IEN - 11120

## GANTRY CRANES SAVE TIME

### Cost Fraction of Heavy Overhead Crane

If your overhead crane is loaded with work, consider the addition of single-leg gantry cranes to work under it. You can free it of much of the lighter work and eliminate costly waiting time of skilled workers. Several gantries can be purchased for the price of a single heavy overhead traveling crane. Supplied for hand or electric operation.

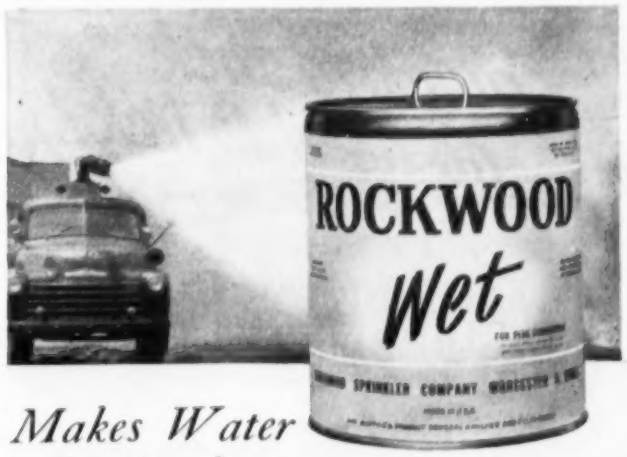



*GET THIS BOOK!* BOOKLET No. 2008 Packed with valuable information . . . Profusely illustrated.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
4222 East 285 Street, Wickliffe, O.

**CLEVELAND TRAMRAIL**

If you write maker identify as IEN - 11121




## *Makes Water Go Farther*

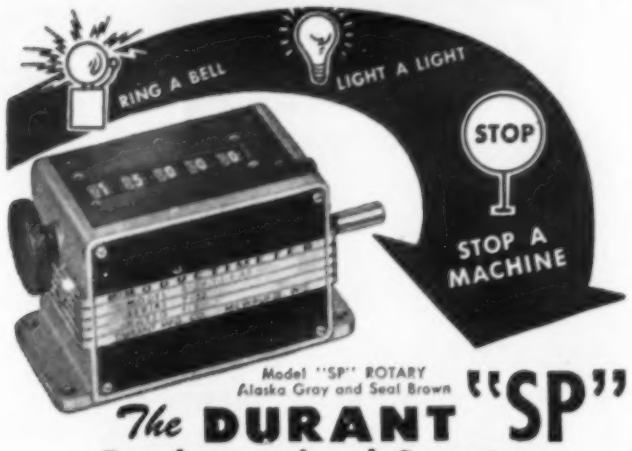
Rockwood WET — a liquid prepared especially for fire-fighting — increases the spread and penetration of water. Used in solution of 1 part WET and 99 parts ordinary water.

Recommended for fires involving ordinary combustibles such as wood, paper, cloth. And excellent for use with WaterFOG where water is extremely scarce for fire-fighting — such as rural residences, barns, forest and grass fires, factories in outlying districts. Rockwood WET carries water into deep-seated fires in stumps, piles of leaves, duff and other spots where fires might smolder after flames have been extinguished — and where wind could fan smoldering embers into another open fire. With WET, such rekindling is reduced. Also excellent for dust control purposes.

Write for *"Fire-Fighting Products,"* Rockwood's illustrated catalog. Distributors in all principal cities.

**ROCKWOOD SPRINKLER COMPANY**
*Engineers Water . . . to Cut Fire Losses*
40 HARLOW STREET, WORCESTER, MASS.

If you write maker identify as IEN - 11122




Model "SP" ROTARY
Alaska Gray and Seal Brown

## The DURANT "SP" Predetermined Counter

(CLOSES SWITCH AT END OF PRE-SET COUNT)

### PREVENTS COSTLY OVERRUNS

This SMALL, COMPACT Productimeter has hundreds of applications in all phases of industrial production. Make exact production runs to any predetermined count you set.

Extremely rugged, fast and accurate the "SP" Productimeter will eliminate wasteful over- or under-runs. It will turn on a light, ring a bell or stop the machine. Available in ROTARY or STROKE models.

Send for Catalog No. 501

**DURANT MANUFACTURING CO.**
1930 N. Buffum St., Milwaukee 1, Wis.
130 Orange St., Providence 3, R. I.
*Representatives in Principal Cities*

**PRODUCTIMETERS** SINCE 1879 *Count Everything*

If you write maker identify as IEN - 11123

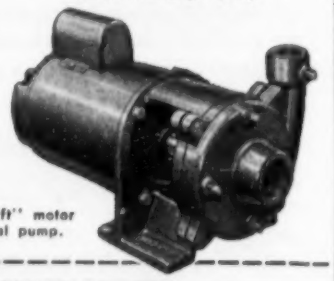
## New Myers "Centri-Thrift" General Purpose Pump

**An addition to present line of centrifugal pumps**

Special low cost, centrifugal pump for bottle washers, booster service, air conditioners, boiler feed service, etc. Myers quality features: Removable, replaceable bronze wearing ring; separate stainless steel pump shaft extended through open bracket for quick inspection and accessability. Bronze impeller is locked to shaft.

Myers "Centri-Thrift" V-belt driven centrifugal pump.

Capacity to 50 gallons per minute. Heads up to 92 feet. Easily handles 180° water. Suction opening 1¼" pipe; discharge opening 1" pipe and can be rotated in any of four positions.



Myers "Centri-Thrift" motor mounted centrifugal pump.

MYERS

**IMMEDIATE DELIVERY**
Write for complete information and prices.
THE F. E. MYERS & BRO. CO.
316 Fourth St., Ashland, Ohio

If you write maker identify as IEN - 11124

*quick to stick no need to lick!*

**AVERY** Kum Kleen self-adhesive **LABELS**

***THE EASIEST AND MOST ECONOMICAL LABEL YOU CAN USE!***

- TRADEMARKS
- GUARANTEES
- NAMEPLATES
- DIAGRAMS
- APPROVAL SEALS
- INSTRUCTIONS
- "BUY" FEATURES
- WARNING
- INSPECTION
- PRICES

***SAVE YOU TIME - MONEY!***

An Avery label specialist will gladly explain how you can use Kum-Kleen pressure-sensitive labels profitably in YOUR business. Mail the coupon now for complete facts.

PATENTED AVERY ELECTRIC DISPENSER

**AVERY ADHESIVE LABEL CORPORATION**
117 Liberty St., New York 6 • 1616 S. California Ave., Monrovia, Cal.
608 S. Dearborn St., Chicago 5 • Offices in other principal cities

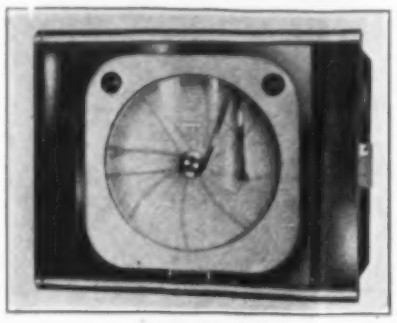
☐ Please send case histories and samples
☐ Tell us about your electric label dispenser
☐ Have the local Avery man call

Name
Title
Company
Address

If you write maker identify as IEN - 11125

## CONTROL . . Electronic pyrometer for programmed time and temperature

Source: BRISTOL COMPANY
107 Bristol Road, Waterbury 20, Conn.



Bulletin P1255

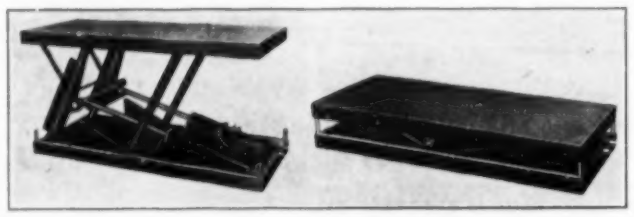
A sequence of heating, soaking and cooling is a typical time-temperature program for which this new electronic Dynamaster recording potentiometer control is suited. The temperature schedule is regulated by a transparent plastic cam that mounts on the face of the circular chart and moves around with it. A program is changed by changing the cam.

**Three types** of control are available. These include low-open, high-open and low-high. Either of the first two is available also with proportional input. Operation is on 110-volt 50/60-cycle ac. The control relay rates 15 amp. on 110-volt ac. The chart and cam drive is standard for 24-hr. rotation. Chart diameter measures 12 inches. List price is $748, or $828 with proportional input.

If you write maker identify as IEN - 11126

## ELEVATOR . . Power hydraulic table, 2 to 5 ton, lift height to 43 inches

Source: BEACON MACHINERY INC.
P. O. Box 188-A, Dept. LT-IEN, East St. Louis, Ill.



Raises work to required levels

**Vickers pump** and direct connected 1½ or 2-hp. motor provide hydraulic pressure for the pivoted lift movement of this new table. It stands 12½ in. above the floor in lowered position, lifts to 43 inches. It can be stopped and held at any intermediate position or lowered back toward the floor. Control centers at foot operated levers mounted at one end of the base. A remote push button station can be specified. Retractible wheels on the rear and a front pry bar also are available. Top dimensions measure 36 by 84 inches.

If you write maker identify as IEN - 11127

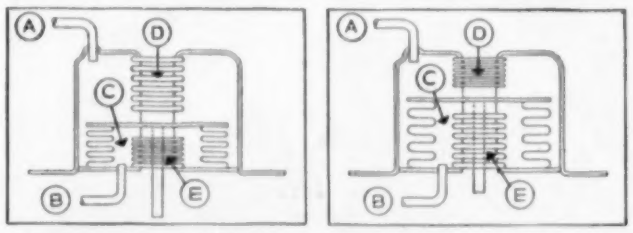
**Punch and die units** are available from S. B. Whistler & Sons Inc., 748 Military Road, Buffalo 23, N. Y., to punch holes both horizontally and vertically in a vertically operating press. The vertical units can be set up to operate on one or more work levels simultaneously. The horizontal units will put holes through turned down flanges. Setups are made on base plates that slide into a press and do not require attaching to the press ram.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11128

A PAID NEWS ADVERTISEMENT BY CLIFFORD MFG. CO.

## PRESSURE CONTROL of differential or absolute pressure provided by new differential pressure bellows assembly.




Pressure greater at inlet (A) compresses large bellows, thrusts actuating rod downward.

Pressure greater at inlet (B) extends large bellows, draws actuating rod upward.

The Clifford Differential Bellows Assembly consists of large operating bellows (C) and two smaller sealing bellows (D), (E). Pressure may be applied either inside or outside (C). Movement of the actuating rod is then proportional to the *difference* between inside and outside pressures. Either side of (C) may also be evacuated and sealed. Movement of the rod is then a function of absolute pressure. Rod can actuate switches, valves, etc., to control an indicated differential or absolute pressure.

The new unit is adaptable to all types of processes where pressure within a fluid system must be automatically equalized, or where absolute rather than gauge pressure must be maintained as in aircraft fuel systems, for example. Assemblies are made of brass, stainless steel, monel and other suitable bellows materials.

Clifford is glad to answer your questions or provide "bellows-engineering" help.

Write for bulletin: "*What To Consider When Selecting A Metallic Bellows.*"

**CLIFFORD MANUFACTURING COMPANY**
146 Grove St., Waltham 54, Mass.
Division of Standard-Thomson Corporation

If you write maker identify as IEN - 11129

## SPECIAL DELIVERY

***of the reduced pressures you want!***

**. . . with this STANDARD valve**

Here is a standard diaphragm regulator that can handle your *special* pressure control requirements. It is furnished in a wide range of sizes, types (self-contained, instrument or pilot control), bodies, and trim, to your specification. For water, oil, steam, air or gas. No. 119 single seated, No. 114 double seated, sizes ½" to 6", screwed, standard or extra heavy flanged. Direct or reverse acting. Tested and approved by leading engineers and contractors — the answer to your regulator problems.

**No. 114 & No. 119 REGULATOR**

- Pressures to 300 psi reduced to zero.
- Bronze, semi-steel or steel bodies
- Spring loaded, interchangeable diaphragms
- For water, oil, steam, air or gas

WRITE FOR CATALOG NO. 53E

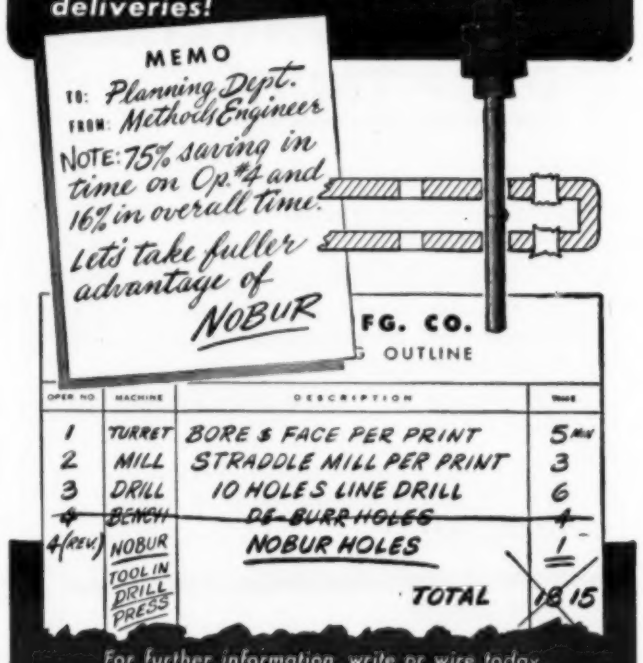
**KECKLEY**
pressure regulators • float boxes
temperature regulators
pop safety valves • relief valves
float valves • balanced valves
pump governors • strainers

**O. C. KECKLEY COMPANY**
400 West Madison Street • Chicago 6, Illinois

If you write maker identify as IEN - 11130

## Deburring with NOBUR tool

on drill press reduces production costs . . . speeds deliveries!




For further information, write or wire today.

**NOBUR MANUFACTURING COMPANY**
717 NORTH VICTORY BLVD. • BURBANK, CALIFORNIA

If you write maker identify as IEN - 11131

## Use *Mutual* LP-GAS Furnaces and Torches

**REDUCE MAN HOURS CUT COSTS**

For every industrial heating job LP-GAS will do it faster, better and cheaper. Reduce man hours and increase your profits with this modern fuel available everywhere. No pumping or priming. Starts instantly and won't blow out. Equipment is safe, lightweight, easy to handle. Mutual's 20 years' experience is built into every furnace, torch, heater and burner. Insist on MUTUAL—superior in performance and workmanship. You'll find our service superior too. Write us today about your heating or melting job. You'll receive our recommendation bulletin and prices by return mail.

*Mutual* LIQUID GAS EQUIPMENT CO., Inc.
3600 WEST IMPERIAL HIGHWAY, INGLEWOOD, CALIF.

If you write maker identify as IEN - 11132

For light where you need it —there's a

**CANNON UTILITY & PATHFINDER LIGHT**

Designed for widely diversified industrial and home applications (not recommended as reading lamps). Cannon Utility, Pedestal and Pathfinder lights are available in several combinations of lens colors. Shatter proof prism lens means long life and safety, no maintenance problems, low cost. Operate on low voltage and 115v. Available through electrical wholesalers everywhere.

*Write for Specialty Light Bulletins & Price Lists.*

**CANNON ELECTRIC**
*Since 1915*

**CANNON ELECTRIC COMPANY, LOS ANGELES 31, CALIFORNIA**
Factories in Los Angeles, Toronto, New Haven. Representatives in principal cities. Address inquiries to Cannon Electric Co. Dept. K-112, Los Angeles 21, Calif.

If you write maker identify as IEN - 11133

# Stop bothersome Blink...Blink...Blink

**WITH WATCH DOG NO-BLINK FLUORESCENT STARTERS**

- **Watch Dog* starters stop *blinking*** by automatically turning off a failing fluorescent lamp.
- **Watch Dog starters *keep the lamp off*** until the red reset button is pushed when new lamp is installed. No recurrent blinking every time lights are turned on.
- **Watch Dog starters *last longer***—by as much as 10 to 1. Ballasts last longer, too.

You can stop blinking—cut starter replacement costs—cut ballast replacement costs—by changing to General Electric Watch Dog no-blink starters. For more information, write Section Q29-1042, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

**For all replacement needs**—use the famous Watch Dog no-blink starter with the red reset button.

**And look for this tag** when you buy fluorescent fixtures. It's your guarantee that the fixture is equipped with G-E Watch Dog starters.

*Registered Trade-mark General Electric Company

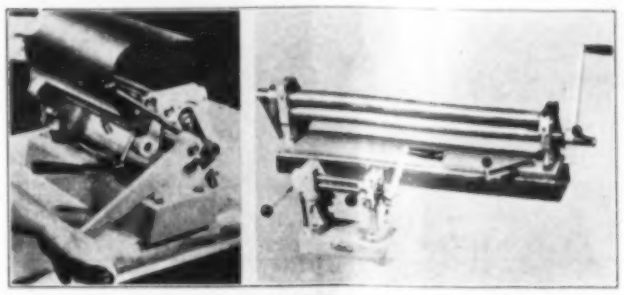
*You can put your confidence in—*

**GENERAL ELECTRIC**

If you write maker identify as IEN - 11135

## BENDING . . Hand rolling machine forms closed circles, angle bends

**Source: O'NEIL-IRWIN MFG. CO.**
**547 Eighth Ave., Lake City, Minn.**



**From $110 to $355**

**Six new models** have been added to the hand operated roll type bending machine, previously described IEN-8319-52. The new machines range in capacity from 16 to 24-gage sheet steel with widths from 12 to 42 in. and radius capacity minimum at 2 inches. Round, flat and square stock, as well as other ductile materials, can be formed. The company is prepared to supply special rolls for specified jobs. The new machines supplement the original two which were designed to take work to 6 and 12 in. in width in 16-gage steel and to roll circles 1 in. or larger in diameter.

**The operator** adjusts the machine for material thickness and circle diameter. He then inserts the work from the front, while turning the operating crank, until about one-half of the material has been run through with the cam positioned idler roll retracted so there is no bending action. He pulls the cam lever into bending position and continues to turn the crank to form a half circle as the work feeds through.

**The work** is inserted next with its position reversed and the bending roll in active place. Upon continuing the rolling action, the work is formed into a true closed circle. It can be removed after releasing the roll bearing to the right of the machine assembly.

**Bends** can be located in any position along a piece of work by feeding it through to the location where the bend is required and then operating the cam lever. As a result, it is possible to produce a variety of shapes with straight sections on both sides of a bend to a predetermined layout.

If you write maker identify as IEN - 11136

## HEATING . . Lead plate element, low pressure steam, for chemicals

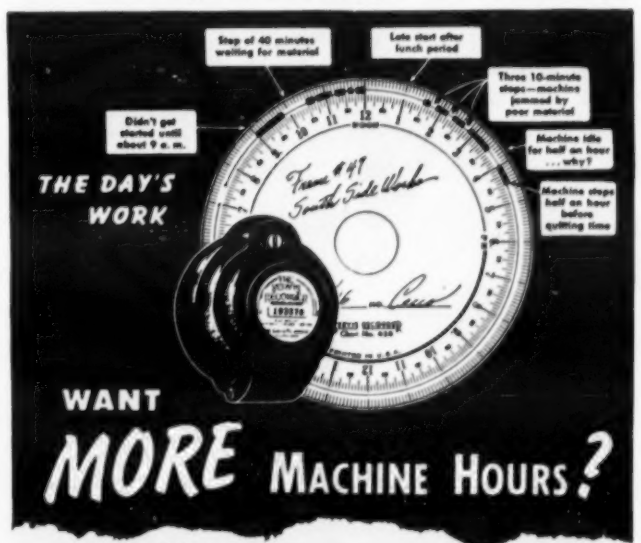
**Source: KNAPP MILLS INC.**
**23-17 Borden Ave., Long Island City 1, N. Y.**

**Specials to order**

**New heater** applies in chemicals such as chromic sulphurous, phosphoric and sulphuric acid and sulphates. It employs steam at 10 lb. or less. It is available in three standard sizes with surface area ranging from 6½ to a little over 13 square feet. Integral hooks provide for suspension in a tank. Inlet and outlet connections are at one corner.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11137




WANT **MORE** MACHINE HOURS?

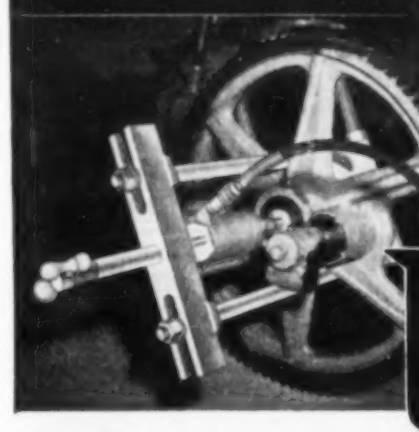
**FIRST FIND OUT ALL THE DOWN TIME**

Make every machine now work harder and produce more. How? Well, the first step is to find out if any valuable time is now being wasted by machines *standing idle* at odd moments. And the way to do *that* is to clamp a little SERVIS RECORDER on each one of your machines. Then you'll get the whole story—see chart above. Write for our folder—*"A Busy Plant."* The Service Recorder Co., 1375 Euclid Ave., Cleveland 15, Ohio.

**The Servis Recorder**
SHOWS UP ALL IDLE TIME!

If you write maker identify as IEN - 11138

**PUSH . . . PULL** 75% FASTER 90% EASIER



WITH THE CENTER HOLE

OTC

## 50 TON HYDRAULIC PULLER

Removes or installs bearings, gears, pinions, shafts, studs, wheels, pulleys, etc.—75% faster and 90% easier. This new OTC 50 ton ram is completely portable (weighs only 45 lbs.)—has remote control pump—interchangeable ram heads—and can be used as a production holding fixture. Also available in 17½ and 30 ton sizes. *Booklet describes complete line and uses of OTC equipment.*

WRITE FOR FREE BOOKLET

**OWATONNA TOOL COMPANY**
371 CEDAR STREET • OWATONNA, MINN.

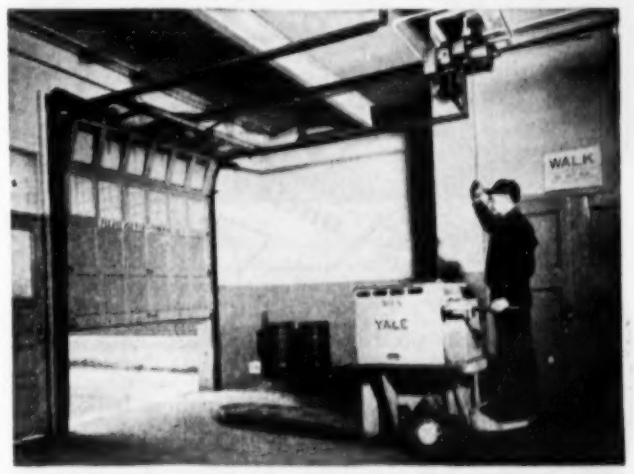
If you write maker identify as IEN - 11139

BARBER COLMAN

Barcol®

## Electric Operators

**for rugged industrial use**




Barcol OVERdoors operate smoothly and easily because twin torsion coil springs are engineered to balance the exact weight of the door, glass, paint, and every ounce of plated hardware. Add the patented Barber-Colman cam closing action, and your door is sure to be weathertight yet easy working. Equip with Barcol electric operators to speed plant traffic and save heat. Your Barcol distributor sells, installs, guarantees, and services. Look under "Doors" in phone book.

**BARBER-COLMAN COMPANY, DEPT. V310, ROCKFORD, ILLINOIS**

If you write maker identify as IEN - 11140

**Which of these *Signode* strapping accessories do you need?**

Check your stock of strapping accessories used for car bracing and heavy-duty strapping operations. If your supply of these important items is low, order by name directly from this advertisement—or if you use quality, low-price strapping accessories, send for NEW four-page descriptive folder. (Or write for prices and list of these and other accessories.) Signode Steel Strapping Co., 2611 N. Western Ave., Chicago 47, Ill.

TESTED AND SIGNODE APPROVED

THIS SEAL MEANS SIGNODE SECURITY IN SHIPPING

*If you write maker identify as* **IEN - 11141**

## DO IT EASIER... FASTER...

### WITH SAFE WERNER ALUMILADDERS

**Effort is money. Save both with light weight—ruggedly strong—Werner Aluminum Ladders.** Light enough for one man to handle easily—yet strong enough for the most rugged work. Built like an airplane of tough, tempered aluminum alloys—the strongest of the light metals—they can't rot or rust. Non-skid corrugated rungs are locked solidly in place...can't turn. No extra charge for Underwriter approved Safety Shoes, Locks, Rope or Pulleys.

Single ladders 6 ft. to 20 ft....extensions 20 ft. to 52 ft. Also step ladders 4 ft. to 10 ft. See them at your supplier or write direct today for FREE BOOKLET..."What to look for when purchasing Industrial Type Ladders."

Secure, unbreakable lock

**Manufacturers—Basic Aluminum Extrusions and Roll-formed Products Dept. L-5**

FACTORIES: Greenville, Pa. Oshawa, Ont., Canada

R. D. WERNER CO. INC. ALUMINUM 295 Fifth Ave., New York 16, N. Y.

*If you write maker identify as* **IEN - 11142**

## DON'T WAIT 'TIL TOO LATE

Model 218

Clean plants get those important defense jobs. Get your plant cleaned up now. A week or month from now may be too late.

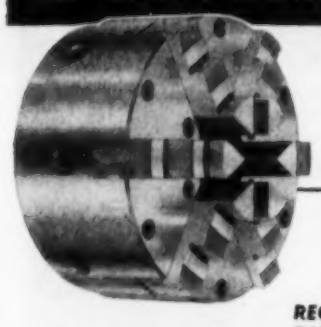
Send for important Doyle Vac-It information today. There's no obligation.

**Doyle VACUUM CLEANER CO.**

2235 Stevens St., S. W. Grand Rapids 7, Mich.

*If you write maker identify as* **IEN - 11143**

## .0005" PRECISION CHUCKING AT SCROLL CHUCK SPEED!



*Buck* AJUST-TRU CHUCKS

**RECHUCK TO .0005" ON DUPLICATE PARTS WITHOUT FURTHER ADJUSTMENT!**

The time, labor, and equipment costs you can save with a Buck Ajust-Tru chuck are little short of amazing. It lines up dead true *in less than a minute!* Rechucks duplicate parts *within .0005" at scroll chuck speeds!* Ends most needs for collets, step collets, stub arbors, mandrels, special fixtures. Adapts to lathes, screw machines, dividing heads. *Often doubles, triples output.* Get the *full* story. Send today for latest catalog.

**$44.00 TO $250.00**

F.O.B. KALAMAZOO

3-Jaw and 6-Jaw Models Available in 4", 5", 6", 7½", and 9" Diameters. 2-Jaw Aviation Chucks Also Available in 6", 7½", and 9" diameters.

**BUCK TOOL COMPANY**

1016 SCHIPPERS LANE • KALAMAZOO, MICH.

**NEW 4-JAW INDEPENDENT CHUCK WITH GREAT NEW MACHINING ADVANTAGES!**

Most chucks for 9" to 16" lathes are either too light and cheaply made to hold work securely, or too heavy for the lathe and clumsy to handle. Here's the chuck with the ideal weight—providing much more "holding power" and eliminating ½" overhang to improve accuracy, permit heavier cuts. 6", 8", and 10" models available. Send for latest catalog.

*If you write maker identify as* **IEN - 11144**

## TRUCK . . Caster steel trailer for loads to 4 ton that tend to tip

**Source: MERCURY MFG. CO. 4132 S. Halsted St., Chicago 9, Ill.**

**Special sizes and side boards to specification**

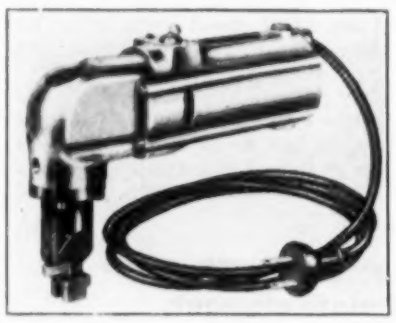
**Stability** characterizes the movement of this new caster-steer trailer. The steering assembly provides two points of support under the load platform with wide spacing between them. The load platform employs a steel frame filled with 1¾-in. hardwood. Dimensions are 8 by 3 by 2 feet.

**The rear wheels** mount 15 by 5-in. rubber tires, the caster wheels are fitted with 12 by 4-in. rubber tires. The wheels ride on Hyatt roller bearings. The towing handle is retractable. Couplers permit operation in a trackless train.

*If you write maker identify as* **IEN - 11145**

## NIBBLING . . Portable electric tool, 110 or 220 volts, for 14 gage steel

**Source: FENWAY MACHINE SALES CO. 18-22 S. 15th St., Philadelphia 3, Pa.**



**Operator guides it**

**New cutting head,** new bearing design for the drive shaft, addition of a model with a 220-volt universal motor as well as the 110-volt unit, previously described IEN-12370-52, are features of this new nibbling tool. Assembly includes a three-conductor cable and plug. The tool can be guided for a minimum radius of ⅞ inch. It will not distort original contours of a work surface on which it is applied.

*If you write maker identify as* **IEN - 11146**

**For $1,** Lincoln Electric Co., Box 3035 A, Cleveland 17, Ohio, will ship to you, postpaid, a set of 19 tracing paper sheets in a loose-leaf binder. They cover arc welding procedures it has developed using weld symbols of the American Welding Society. The sheets enable engineers for the machinery builders and the fabricators to acquire cost and quality control over the welding operations. The Standards specify, according to plate thickness, with a simple letter designation, the type and size of weld and how it should be made. The sheets can be blue printed to provide copies as required. The welding shop can be assured it is making the weld desired and according to specification for economy, strength and appearance.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* **IEN - 11147**

## SPEED UP SLOW-FLOW MATERIALS

TARS
PLASTICIZERS
WAXES
MOLASSES
GLUES
RESINS
GREASES
GUMS . . ETC.

**ACRAWATT ELECTRIC DRUM HEATERS**

**FIT ALL STANDARD 22¼" DRUMS**

- Proven Acrawatt THINSTRIP Construction.
- 3 Heats: 3000 Watts 230 Volts.
- Fast Heat Transfer.
- Aluminized Steel Encased.
- Enclosed Wiring Terminals.
- Low Radiant Loss.
- Fully Insulated.
- Easy to Install and Remove.

Kill time-consuming, costly slow-flow of viscous materials. Slip one or more Acrawatt Drum Heaters on your drums. Make cloggy, sluggish contents get a move on. Go on and off in a jiffy. Safe and simple to apply and operate. Use singly or in multiple. Save with Acrawatt reliability, long life ruggedness and efficiency. Order today.

**ORDER NOW EA. $19.50 F.O.B. CHICAGO**

**Spot Shipment** Shipping Wgt. 10 Lbs.

**FOR BETTER ELECTRIC HEATERS AT BETTER PRICES, LET US QUOTE**

**ACRA INDUSTRIAL ELECTRIC CO.**

9905 PACIFIC AVENUE • FRANKLIN PARK, ILLINOIS

*If you write maker identify as* **IEN - 11148**

## PLATEGRIP

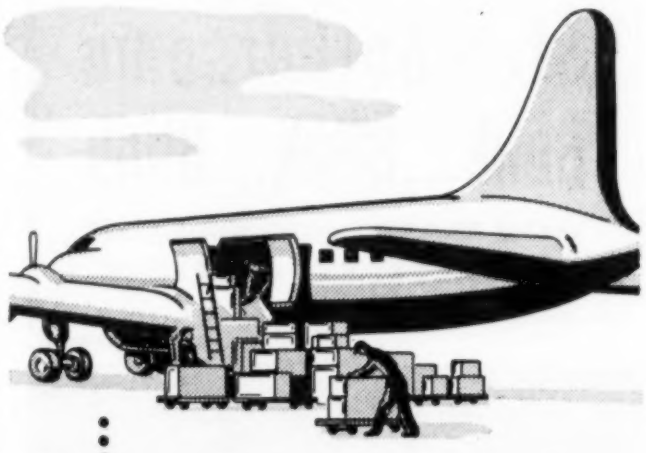
*PLATE FASTENERS FOR CONVEYOR BELTS*

**Make strong dust-tight, water-tight joints in belts of any width. Special design spreads tension uniformly across belt, allow natural troughing of belt and assures smooth operation over flat, crowned or take-up pulleys. Sizes for belts of from ¼" to 1½" thickness. *Write for Catalog Sheet.***

**ARMSTRONG BRAY & CO.**

5380 Northwest Highway • CHICAGO 30, U.S.A.

*If you write maker identify as* **IEN - 11149**



## *When Flying Freight* AETNA Plywood LIGHTENS THE LOAD

Nowadays just about every kind of product is shipped by air freight. Dollars in shipping costs are saved by manufacturers who lighten the load by using AETNA utility plywood for crates and boxes.

Leading makers of aircraft, too, lighten the weight of planes by using AETNA plywood for cabin walls, instruments panels, propeller blades and many other parts.

AETNA—*and only AETNA*—carries plywood from mills all over the world. Out of this wide range of stock AETNA furnishes plywood for any industrial or decorative use. Tough as many metals and *lighter in weight,* AETNA plywood costs less per square foot than any material you can compare with it.

AETNA'S engineering staff provides technical help so important to the efficient application of plywood. This service is FREE.

Call your nearest AETNA office or branch warehouse, or write, for prices, information and technical plywood help.

**AETNA PLYWOOD & VENEER CO.**

1724 N. Elston Ave. • Chicago 22, Illinois

ARmitage 6-7100

BRANCH WAREHOUSES: Grand Rapids 7, Mich.; Indianapolis 2, Ind.; Rockford, Ill.

PLYWOOD for every purpose — every industry

*If you write maker identify as* IEN - 11151

## If the equipment you design calls for 29.9" of vacuum or 25 psi pressure

Wings in this Leiman Pump take up their own wear, year after year, and always maintain contact with cylinder wall. *See our Listing in Sweet's Product Design File*

**Write for 16-page catalog and blueprints of typical applications on Leiman rotary positive pumps—choice of industry since 1889.**

**LEIMAN BROS., INC.**
166 Christie Street Newark 5, N. J.

*If you write maker identify as* IEN - 11152

## Overhead work's a SNAP! with the NEW Ladscaf SCAFFOLDING

**No Bolting with Ladscaf 'LOCK-ON' CLAMPS**
It's a snap to erect Ladscaf with these new positive-action clamps. Will not disengage until trigger is released.

**UP FASTER**
Quickly clamps together to build *better* scaffold *faster*. Ladder rungs are spaced just a foot apart.

**SWIVEL ACTION**
Stabilizers swivel back to move scaffold easily thru narrow aisles.

**UP STAIRS**
Ladscaf 'climbs' stairs easily—reduces blocking to a minimum. 2-foot wide panels permit convenient passage around scaffold.

Write for informative, New Ladscaf Bulletin IE-10.

***IT'S A SNAP TO SAVE***

*Call on Universal's layout and planning service to help you*

**on all Maintenance Painting and Decorating Problems**

## UNIVERSAL SCAFFOLDING

Ladscaf low-cost, welded steel ladder panels, eliminate bolting—are quickly erected with exclusive snap-on' clamps. Easily fits in confined areas—can be rolled on casters—and extended to straddle machinery.

Combine New Ladscaf with famous Universal Ezebilt steel-panels and Endlok pipe-and-clamp for difficult and unusual scaffolding jobs.

**UNIVERSAL MANUFACTURING CORP. ZELIENOPLE, PA.**
Distributors offer fast help and service. Consult your classified phone directory.

*If you write maker identify as* IEN - 11154

## MIXING . . Extension rod and head to stir liquids with a portable drill

**Source: CONN & COMPANY**
**9-13 S. Marion St., Warren, Pa.**

**List at $1 cadmium plated**

**Application** of this new portable tool attachment can be made in gallon, quart and pint cans. It fits in a ¾-in. chuck and mounts a dimpled head. It stirs, without splashing, to mix paints and similar liquids. It is available in cadmium plated and nickel or chromium plated finish.

*If you write maker identify as* IEN - 11155

## PROTECTING . . Insulated pad for workers who carry hot objects

**Source: SANITARY BAG CO.**
**478-82 N. Front St., Memphis 1, Tenn.**

**Light, neat and pliable**

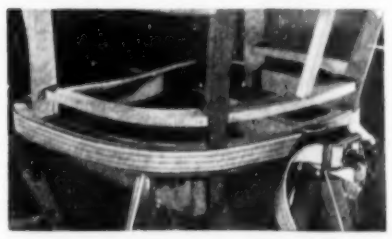
**Terry faced fabric**, duck backing, an inner plastic liner and an elastic wrist band at the back, make up the construction of a 9 by 11½-in. Panhandler pad for workers who must handle hot objects. The pad was developed initially for the bakery field. It is offered now for general industrial application. List price is 95 cents per pair on a minimum order of one dozen. It is 80 cents per pair in lots of two gross or more.

**Resin treatment** on the face fabric makes the fabric resistant to abrasion. The terry face provides a non-slip surface. The plastic inner liner insulates against heat and also prevents penetration of hot fluids or grease through the body of the pan to the worker's hands. Sanforized treatment permits repeated laundering without shrinking or stretching.

*If you write maker identify as* IEN - 11156

## CLAMP . . Screw tightened band for use on round or irregular objects

**Source: ADJUSTABLE CLAMP CO.**
**414 N. Ashland Ave., Chicago 22, Ill.**



**Shown in holding position**

**A canvas band**, measuring 10 to 30 ft. in length, threads into a screw equipped head in this new Style-62 Jorgensen clamp. Turning the screw by means of a small crank draws the band ends in to tighten around an object on which the band has been placed previously.

**The band** measures 2 in. in width and is pre-stretched. A steel band, 1¾ in. in width, can be specified. Self-locking cams hold the band in the head for loads to 2,800 pounds.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11157

## PRECISION INTERNAL FORMING TO MEET PRODUCTION DEMANDS

**QUICK ADJUSTMENT AND POSITIVE ACTION** make the **MAX-WELL-MADE** Model JF recessing tools especially suitable for use in today's high-speed production schedules.

This tool operates on any jig and fixture set-up to cut snap ring grooves, "O" ring grooves and oil labyrinths as well as for inaccessible spot facing, external necking, precision undercutting, etc.

Accurate to within ±0.001-inch, Model JF is available in five sizes to pilot into standard bushings from 1" to 2¼ inches.

JF tools can be supplied with either standard Morse or adjustable adapter, quick-change, straight or special shanks.

*Write today for catalog. (Model JF)*

**THE MAXWELL COMPANY**
391 Broadway • Bedford, Ohio

*If you write maker identify as* IEN - 11158

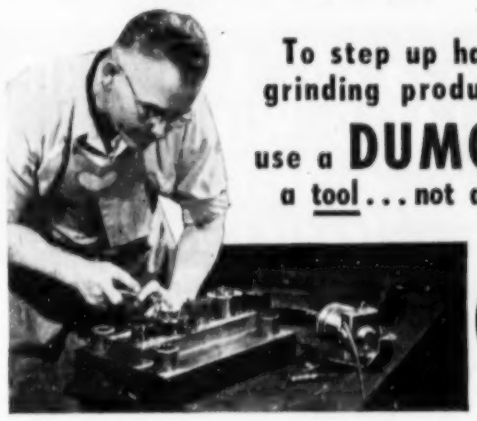
## 3 VALUES!

★ One Piece Construction
★ Wide Wire Range
★ Economically Priced

Strongly constructed—all in one piece—yet small and compact, to fit in tight quarters. UL approved. Only 6 sizes cover a range from No. 14 to 1,000,000 CM. Specify Blackburn and get a quality lug in the low price field.

**JASPER BLACKBURN CORP.**
35 Madison St., St. Louis 6, Mo., CEntral 3007

*If you write maker identify as* IEN - 11159



## To step up hand-grinding production use a DUMORE® a tool . . . not a toy

DON'T be misled by extravagant claims for under-powered hobby-type tools. Manufacturers who want top performance use Dumore Flexible Shaft Tools.

These powerful, high-speed tools slash costs of light grinding, burring, filing, sanding, lapping, chamfering . . . on ferrous and nonferrous metals, wood, plastics and ceramics.

No matter what your job requirement or your shop budget, Dumore has the right flexible shaft tool for you.

### Choose from a complete range of 3 sizes

| DUO-FLEX — 1/15 hp | POWER-FLEX | UNI-FLEX |
|---|---|---|
| lo-speed, 500-3,500 RPM | ¼ hp — | 1/15 hp — |
| hi-speed, 3,000-15,000 RPM | 20,000 RPM | 15,000 RPM |

Furnished with heavy-duty, oil-resistant flexible shafts and Dumore quality, continuous-duty rated motors. Power-Flex puts the power on the bench. Other models can be suspended from any convenient hook.

Ask your nearby industrial distributor for a demonstration or write . . .

**DUMORE PRECISION TOOLS**
The Dumore Company
1319 Seventeenth Street • Racine, Wisconsin

*If you write maker identify as* IEN - 11160

## *is its Business*

Experts say that the easiest way to make substantial reductions in production costs today is by improving materials handling methods. And it's a matter of record that thousands of plants have cut their production costs substantially by putting "PAYLOADER" tractor-shovels to work on their bulk and loose materials-handling jobs.

"PAYLOADERS" work indoors and outdoors . . . unload box cars . . . dig, carry, load, dump, lift, pull and push. These versatile tractor-shovels take over laborious, slow, manual shovelling and pushing jobs and do them faster and cheaper. If you have *any* bulk or loose materials to handle around *your* plant, it will pay you to get full "PAYLOADER" information from your Hough Distributor. There's a model to fit your needs — seven sizes from 12 cu. ft. to 1½ cu. yd. bucket capacity. The Frank G. Hough Co., 841 Sunnyside Ave., Libertyville, Ill.

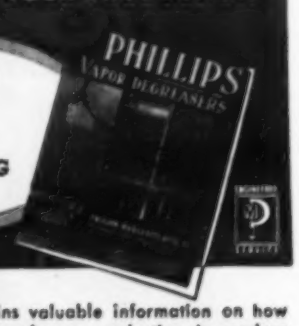
**PAYLOADER®**
THE FRANK G. HOUGH CO. • Since 1930

If you write maker identify as IEN - 11161

# PHILLIPS

LEARN HOW VAPOR DEGREASING CAN CUT COSTS AND INCREASE YOUR PRODUCTION

SEND FOR YOUR FREE COPY OF PHILLIPS' NEW DEGREASING BULLETIN




HERE's a new bulletin that contains valuable information on how modern vapor degreasing speeds up production in modern factories by making metal cleaning operations faster and more economical. Listed below are some of the features of this new book:

**WHAT DEGREASING IS** — A full description of what vapor degreasing is and what it will accomplish for you.

**HOW DEGREASERS WORK** — A series of photographs and written description shows what happens in the degreasing process.

**DEGREASER APPLICATIONS** — Illustrates number of different applications of degreasers to solve metal cleaning problems in various industries.

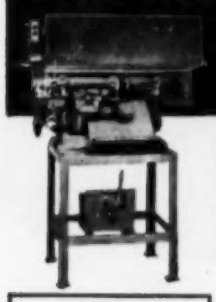
**COMPLETE LINE OF STANDARD DEGREASERS** — Describes Phillips' full line of standard equipment, including batch type, combination, rotomatic, and conveyorized models.

**SPECIALLY ENGINEERED UNITS** — Tells about Phillips' service in designing special degreasing units for solving unique metal cleaning problems.

Phillips 3461 Touhy Avenue • Chicago 45, Illinois
MANUFACTURING COMPANY
Engineered Metal Cleaning Equipment

If you write maker identify as IEN - 11162

# How to CUT AND STRIP INSULATED WIRE... as fast as 3,000 lengths per hour!



## ARTOS Automatic MACHINES REDUCE TIME AND COST

For quantity production of finished wire leads ... measured, cut to length, and stripped at one or both ends ... investigate Artos Automatic Machines.

The Model CS-6 illustrated can complete up to 3,000 pieces per hour in 15-in. lengths, and other lengths in proportion. You save through combined operations ... through quick, easy set-up ... through unskilled help who can handle this machine. You obtain substantial time savings over the best manual or semi-automatic methods.

Highly accurate machine operation reduces work spoilage to an absolute minimum—errors due to the human element are eliminated. There is no cutting of strands or nicking of solid wire. Uniform lengths and uniform stripping are produced consistently.

MODEL CS-6E CAPACITY

FINISHED PIECES PER HOUR —15 in. lengths, 3000 per hour; 97 in. lengths, 300 per hour.
MAXIMUM STRIPPING LENGTH—1½ in. at each end.
MAXIMUM CUTTING LENGTH—97 in.
MINIMUM CUTTING LENGTH —2 in. (⅞ in. special).
WIRE HANDLED—Solid or stranded single conductor wires, parallel cord, heater cord, service cord, etc.
MAXIMUM WIRE SIZE—No. 10 stranded or No. 12 solid.

## WRITE FOR BULLETIN

Get the complete story—write now for Bulletin 35-C on Artos Model CS-6 machines.

Automatic Wire Cutting and Stripping
ARTOS ENGINEERING CO.
2749 S. 28th St. • Milwaukee 46, Wis.

If you write maker identify as IEN - 11163

ANGLE STEEL

# NEW CABINET DESK

Has generous storage space for articles that are apt to get lost.

Large, roomy cabinet with adjustable shelf, reinforced double-locking doors. Spacious drawer with lock. Open space on top for desk essentials. Has smooth, slanting writing surface.

A. S. olive green finish. Shipped knocked down with necessary fastenings for quick assembly. No. 30 — 34" wide x 30" deep x 53" high back

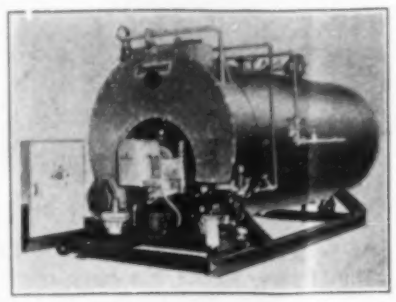
For additional information send for FREE Literature giving Company Name and Title to

ANGLE STEEL INC.
DEPT. 3, PLAINWELL, MICHIGAN

If you write maker identify as IEN - 11164

## BOILER .. Self-contained assemblies of unit burner and burner equipment

Source: TITUSVILLE IRON WORKS
51 Industrial Ave., Titusville, Pa.



Bulletin B-3133

**The company** announces new combination of its self-contained boiler with a burner and the required controls made by Iron Fireman Mfg. Company. Each assembly is shipped on steel skids ready for operation upon connection of fuel, water, steam and electrical lines.

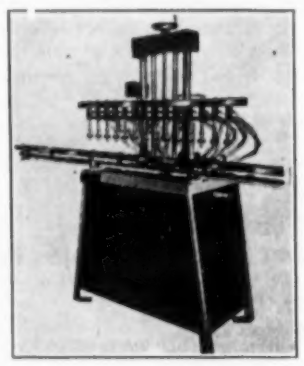
**The ASME Code** boiler employs tubes ranged in staggered rows so release of steam from the tube walls is speeded by a wiping action to promote heat transfer. The burner is an automatically controlled design with a 5 to 1 turndown. Operation is on oil, gas or both with switching from one to the other in a few seconds.

**Power units** are built in a capacity range from 37 to 363 hp. at normal SPI rating with certified output from 56 to 545 hp. Heating units are built in sizes from 4,250 to 42,500 edr. at normal SPI rating.

If you write maker identify as IEN - 11165

## PACKAGING .. Filling machine for liquids, vacuum or gravity design

Source: PACKER MACHINERY CORP.
30 Irving Place, 8th Floor, New York 3, N. Y.



Available to order

**New design** of the company's straight line liquid filling machines employs a Bellows pneumatic cylinder to raise and lower the filling spouts and an Eagle interval timer to set the time during which liquid will be delivered. A cycle is started by closing a momentary contact switch.

**The spouts** move down, are opened for delivery and remain open until the timer stops the interval by returning the filling heads to "up" position. The timer is adjustable between 2 sec. and 2½ minutes. The arrangement permits an operator to start the action and then prepare for the next cycle knowing the machine will shut off in time.

If you write maker identify as IEN - 11166

**Iron Lung** is the name that has been given to a new furnace, for stainless steel heat treatment, by its maker Lindberg Engineering Co., 2444 W. Hubbard St., Chicago 12, Ill. It prevents discoloration of the work through oxidation. It is intended for Types 305 and Series 400 stainless steels. The design is muffle type, gas fired, hydrogen atmosphere with a water jacketed cooling chamber.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11167

# FOTO-FLO* MODEL C PHOTO-COPYING MACHINE

*New! Speedier! More Economical!*

DAYLIGHT OPERATION NO DARKROOM REQUIRED

Makes up to 5 (18" x 24") Prints a Minute of anything written, printed, drawn or photographed

WRITE DEPT. 53-39 for information showing how FOTO-FLO can speed production and lower photo-copying costs.

*Reg. U. S. Pat. Off.

HALOID THE HALOID COMPANY ROCHESTER 3, NEW YORK
Branch Offices in Principal Cities
Photocopy Papers • Photo copying Machines • Photographic Papers

If you write maker identify as IEN - 11168

# ALL-PURPOSE SLINGS

*with new Roebling Tapered Sleeve Splice . . . stronger . . . cost less!*

NEW ROEBLING All-Purpose Slings with the Tapered Sleeve Splice are delivered ready for the job. The unique rolled loops and tapered sleeve attachments develop full catalog strength of rope ... cost less than ordinary tucked splices ... save "splicing your own".

Made of Roebling "Blue Center" Steel Wire Rope, All-Purpose Slings are unsurpassed for toughness and dependability ... flexible and easy to handle ... come in all standard lengths and sizes. Send for full information and for the free "Sling Data Book." John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

A subsidiary of The Colorado Fuel and Iron Corporation

# ROEBLING

If you write maker identify as IEN - 11169

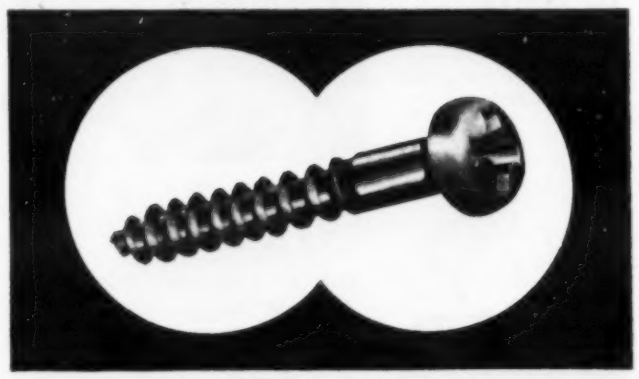
# Who's afraid of friction?

Ever wonder why Tide Water formulates over 300 industrial lubricants? The answer can save you many hundreds of lost lubrication dollars! Because the problems of friction are varied . . . we believe that each job requires a *specialized* lubricant, an oil or grease specifically designed for peak efficiency ... at lowest cost. And we're constantly on the lookout for formulas that do an even better job. That's why we say: When it comes to selecting the proper lubricant—be specific. Ask your local Tide Water representative for the *one* Tycol lubricant that's *engineered to do the job!*

TYCOL INDUSTRIAL LUBRICANTS
TIDE WATER ASSOCIATED OIL COMPANY
17 BATTERY PLACE · NEW YORK 4, N. Y.

Refiners and Marketers of Veedol . . . The World's Most Famous Motor Oil

If you write maker identify as IEN - 11170



# LOOKING FOR SILICON BRONZE WOOD SCREWS?

PHILLIPS OR SLOTTED? FLAT, ROUND OR OVAL

They're in stock at Southern.
All made to Federal Specifications FF-S-111a. Also in steel, brass, aluminum and all popular plated finishes.

Shipment from stock.

For easier driving—wood screws in bulk lubricated free on request.

*Write us for information and free catalogue. Box 68-E*

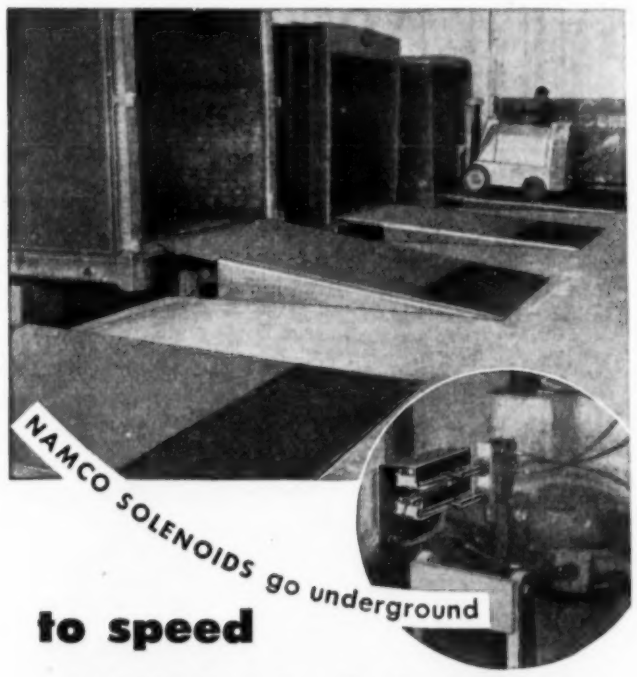
SOUTHERN SCREW COMPANY
MANUFACTURER OF WOOD SCREWS
STATESVILLE, NORTH CAROLINA
Factory Warehouses: North Bergen, N. J. • Chicago 10, Ill. • Los Angeles 23, Calif.

If you write maker identify as IEN - 11171

## IT'S A RANDOLPH!

From Bracket to Blaze in split seconds! No valves to turn, no nozzles to adjust; just point and press your thumb and Randolph's cloud of snowy $CO_2$ kills fire instantly. Non-damaging, non-toxic, won't conduct electricity, deteriorate or freeze. A complete line of extinguishers. Underwriters' approved. Write for catalog to RANDOLPH LABORATORIES, INC. 6 E. Kinzie St. Chicago 11, Ill.

If you write maker identify as IEN - 11172




## to speed multiple dock loadings

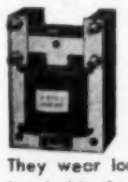
Here is a battery of 5 Dock Ramps over which Addressograph-Multigraph Co. Cleveland, moves scores of truck loadings in and out each day . . . "*materially reducing waiting time of highway carriers and increasing volume of merchandise handled per man hour.*"

Engineered and built by Beacon Machinery Inc., East St. Louis, Illinois, these 10-ton capacity ramps provide ± 12" vertical and 14" horizontal travel—are automatically leveled. Each ramp is operated by 2 hydraulic rams located in each pit, all remote push button controlled through

**Namco "Stellite"-Welded Solenoids**

Namco Solenoids were first built with stamina to satisfy our own hydraulic machine tool needs; they are now standard equipment in 85% of the machine tool industry —many of which are engineered to the job.

Either AC or DC type solenoids may be specified. Standard ratings range from 2½ to 25 lbs. at 1" stroke. Ask your engineers to talk with ours. Catalog EM-52.



**COMPACT • DEPENDABLE • TROUBLE-FREE**

These compact electrical Solenoids are more positive and less costly than cumbersome mechanical contrivances that require frequent inspection and replacements.

They wear longer because the patented "Stellite"-Weld is bonded in the end of the plunger at its vital point of impact against the frame. In addition, upper guide faces of the plunger are hard chrome plated—wear resisting.

ELECTRICAL MANUFACTURING DIVISION

## The NATIONAL ACME CO.

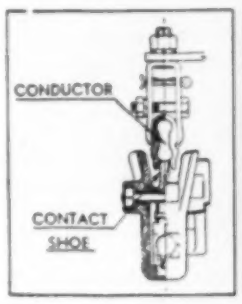
178 E. 131st Street, Cleveland 8, Ohio

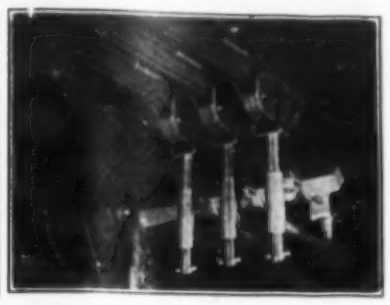
Acme-Gridley Bar and Chucking Automatics, 1-4-6 and 8 Spindle —Hydraulic Thread Rolling Machines—Automatic Threading Dies and Taps—Limit, Motor Starter and Control Station Switches—Solenoids—Contract Manufacturing.

If you write maker identify as IEN - 11174

## ELECTRIC DUCT . . With trolley to convey current to moving equipment

Source: INSUL-8-CORPORATION
1283-87 Rollins Road, Burlingame, Calif.



Details in illustrated Catalog 83

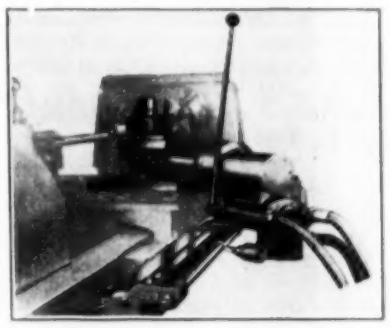
**Illustrated** is a typical three-phase installation of the plastic insulated electric duct, previously described IEN-3489-52. This application is on a monorail track. The company is now prepared to supply a new horizontal mounting of multiple conductors for bridge cranes as well as for monorails. It also has developed a number of new fittings for switches and cross-overs.

**The collector units** are available in 50, 100 and 150-amp. capacities. They maintain contact by means of springs with the conductor bars. The bars are available in steel, copper clad steel or rolled copper bar. The plastic insulation is in the shape of an inverted U. Clamps on a bracket assembly grip the insulator on both sides of the conductor to support both it and the conductor in correct tracking position.

If you write maker identify as IEN - 11175

## LATHE TOOLS . . Tracer attachment for contour work on an engine lathe

Source: MOREY MACHINERY CO.
402 Broome St., New York 13, N. Y.



Simple to set up

**Bondycop** trade names a new hydraulic tracer attachment to mount on a lathe carriage. A tracer head, on the attachment housing at the front, follows the contour of a pattern set up with clamps on an auxiliary way at the front of the lathe. This attachment controls hydraulic pressure on the two sides of a power cylinder that positions the tool in angular cross feed direction. Regular feeds on the lathe are used for the longitudinal carriage movements.

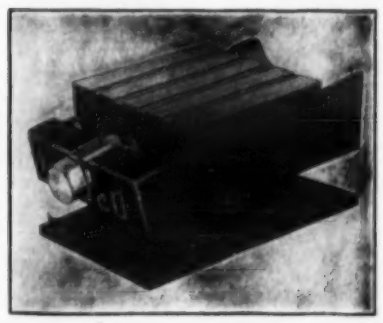
**The attachment** is available for lathes with swing from 10 to 13 in. and from 14 to 20 inches. It will follow any work angle to 90 degrees. It can be used for internal as well as external copying and does not interfere with normal use of the lathe when copy operation is not required. Work diameter variation is to 6 inches. Work length is from 16 to 100 in. between centers. The three major parts of the attachment include a motor driven hydraulic pump, the template holder and the hydraulic tool slide integral with the hydraulic cylinder.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11176

A PAID NEWS ADVERTISEMENT BY ENTEPRISE MACHINE PARTS CORP.

## Improved Machine Leveling Jack is 50% stronger yet lower in height



**Engineering** improvements have made this Jack 50% stronger yet lower in height. This was accomplished by redesigning the Empco Jack so that the adjusting screw always remains cradled in the assembly. This insures full bearing of either front or back collar at any stage of operation.

**Once** the machine is set on Empco Jacks, the simple turning of adjusting screw with a hand wrench will lower or raise the machine until your level indicator reads "zero." With this feature, periodic machine leveling can be done in a matter of minutes.

**To reduce vibration,** Vi-Sorb Mounting Pads are available with each style Empco Jack. These pads substantially reduce vibration, the percentage of reduction usually depends upon the thickness of the pad that is used.

**Level** machine installations with periodical re-leveling is essential to lower costs of machine maintenance. These costs are further reduced by the use of Vi-Sorb Mounting pads under every Empco **Leveling Jack.**

**Available** in three styles: JC-1 (standard) and JC-2 (heavy duty) pictured here, and the newest style JS particularly designed for use with anchor bolts. Many models in all styles with minimum height ranging from 1⅞" to 4".

**For complete** specifications and prices write the Enterprise Machine Parts Corporation, 2737 Jerome Ave., Detroit 12, Michigan.

If you write maker identify as IEN - 11177

Exceptionally efficient on small close-tolerance work, these precision lathes offer you a logical way to lower machining costs. You'll also save on investment, power, tooling and maintenance. Their versatility permits applying this efficiency to a wide variety of jobs. A large selection of attachments and tools simplifies tooling for routine and special operations. Made in Quick Change Gear, Toolroom and Independent Change Gear models—bench and floor types. *Write for literature.*

**SOUTH BEND LATHE**

*Building Better Tools Since 1906 • South Bend 22, Indiana*

If you write maker identify as IEN - 11178

## NEW! Delpark Filters for Paint Spray Booth Water

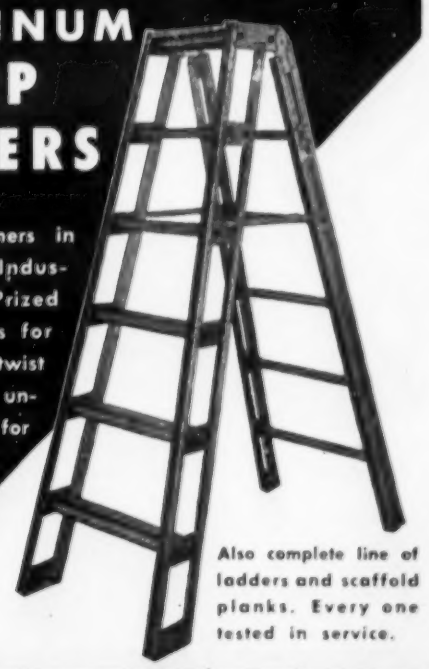
Now—through the use of Delpark industrial filters and automatic skimming, paint spray booth operation is more efficient. Hand-skimming, necessary with former methods, is eliminated. Fouled water spray jets and eliminators no longer interrupt spray booth operation. Clean-up labor and spray booth maintenance are reduced to a minimum.

Write today for information on the Delpark Paint Spray Booth Filter now in use in many large automotive plants.

**INDUSTRIAL FILTRATION COMPANY**
95 INDUSTRIAL AVE. LEBANON, INDIANA

If you write maker identify as IEN - 11179

## HEAVY DUTY ALUMINUM STEP LADDERS

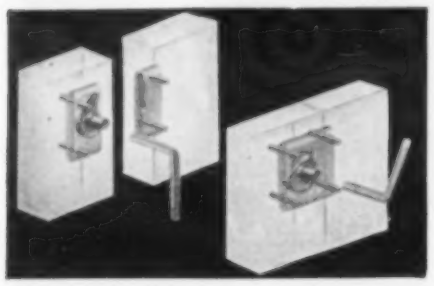


Proven performers in all types of Industrial plants. Prized by Contractors for resistance to twist or wobble. An unexcelled value for heavy service.

Also complete line of ladders and scaffold planks. Every one tested in service.

**LOUISVILLE LADDER COMPANY**
1101 W. Oak St. — Dept. 8A — Louisville 10, Ky.

If you write maker identify as IEN - 11180



Serrated, tapered cam engages lip — draws panels tightly together when turned by any hand tool.

## How to fasten panels securely —and take them apart easily

Roto-Locks fasten demountable panels quickly and securely —at right angles or butt joint. Just turn the tapered cam to lock, turn again to unlock. Check these other Roto-Lock features, too:

1. Roto-Lock carries *both* heavy shear and tension loads.
2. Exerts enough pressure to form an air- and water-tight seal when gaskets are used.
3. Fastens in any mis-aligned or semi-open position.
4. Recesses *completely* into panels.
5. Has no spring or delicate mechanical parts.

Portable shelters, air freight and cold storage shipping containers, walk-in coolers, demountable furniture and scaffolding are a few of the many products using Roto-Locks.

*Write today for catalog.*

**SIMMONS FASTENERS**

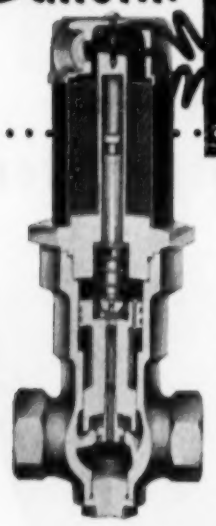
SPRING-LOCK • QUICK-LOCK • ROTO-LOCK

Simmons Fastener Corp., 1758 N. Broadway, Albany, N. Y.

If you write maker identify as IEN - 11181

**free Bulletin**

**Atkomatic SOLENOID ELECTRIC VALVES**



- Designed for Automatic or Remote Control for operating pressures up to 3,000 psi.
- Full-ported, packless, sturdy, dependable, tight closing.
- Adjustable timing on closing stroke to 300 psi. Eliminates shock on supply lines.
- Handles all media not harmful to bronze. Explosion-proof coil housings available for use in hazardous atmospheres.
- Easily maintained, all parts accessible without removing valve from line.

*Write for more complete information*

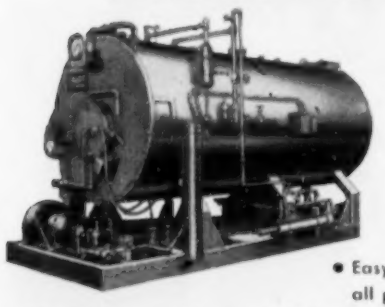
**Atkomatic SOLENOID ELECTRIC VALVES**

ATKOMATIC VALVE COMPANY
545-A ABBOTT STREET • INDIANAPOLIS 25, INDIANA

If you write maker identify as IEN - 11182

"Easy to install . . . Easy to operate . . . Easy on the fuel!"

**AMESTEAM GENERATOR**

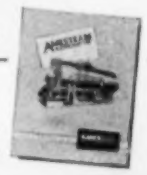


- A complete unit, piped and wired, ready for service connections.
- Needs no special foundation or expensive stack.
- Fully automatic . . . attention-free.
- 80% efficiency means real fuel savings.
- Easy to clean and service . . . all parts accessible.

20 SIZES — 10 to 600 h.p. — 15 to 200# OIL OR GAS

FREE BULLETIN! WRITE FOR YOUR COPY

Complete engineering facts on the exact AMESTEAM GENERATOR to do your job and save you money. Write today!



**AMES IRON WORKS**

BOX F-103, OSWEGO, N. Y.

If you write maker identify as IEN - 11183

## HANDLING . . Molded plastic tray available in specified stacking sizes

Source: MOLDED FIBERGLASS TRAY CO.
893 Erie St., Linesville, Pa.

Available to order

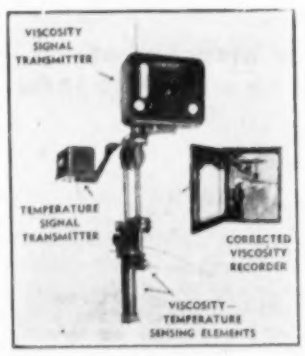
**Illustrated** is one of the various specified designs of Toteline tray now in production by the company. This particular tray was developed to dry soft gelatine capsules. It is equipped with stacking lugs at the four corners. They lock one tray to the next so a stack can be held at a 45-deg. angle without fear of toppling when being moved about.

**The tray** is molded of fiberglass reinforced polyester resin and is available in specified colors. It will not dent, warp, rot or corrode and is not affected by most acids and alkalis. It remains dimensionally stable in a temperature range between minus 60 and plus 300 deg. F. It can be steam sterilized.

If you write maker identify as IEN - 11184

## TESTING . . Viscosity meter checks action in processing equipment

Source: FISCHER & PORTER CO.
12 Jacksonville Road, Hatboro, Pa.




Catalog 88

**Sensing elements** for viscosity and temperature are combined with transmitters in this new equipment for each of the two variables to actuate indicating, recording or control equipment in a continuous process. The equipment operates at stream temperature to 700 deg. F. and viscosity from 34 ssu. to 10,000 ssf., or more, all referred to a base temperature.

**Temperature** compensated Viscorator is the trade name. Accuracy is within 1 per cent of full scale for variations to 10 deg. F. from the base operating temperature. It is within 2 per cent for variations to 25 deg. F. The circular chart in the recording instrument conforms to ASTM standard viscosity-temperature charts for liquid petroleum products.

If you write maker identify as IEN - 11185

**First** came the hand operated wrench with a torque indicating device for use in assembly operations requiring uniform stud driving or nut tightening. Next the tool makers added power to the drive. Now you can purchase, from Hautau Engineering Co., 719-23 Wanda, Ferndale 20, Mich., a complete machine with any number of torqueing spindles to complete a multiple fastening job all at once. A cylinder block to receive studs or a cylinder head to be bolted in place are examples. Each spindle is driven by its own adjustable hydraulic motor. Controls regulate depth, torque, speed.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11186

FOR QUALITY-CONTROLLED **STAMPINGS**

**LONG RUNS**—with complete press range capacity for minimum unit cost.

**SHORT RUNS**—with low tool charge, special purpose presses.

**MACHINE-CUT ORDERS**—from 1 to 100 parts with no tool expense.

- Complete Quality Control Department eliminates rejects
- Recommended by 1500 current customers
- Respect for delivery promises
- Complete quotes—no extras
- Cost-cutting design suggestions

*SEND TODAY for our free 12-page booklet with helpful facts to consider when buying stampings*

STAMPINGS DIVISION
**LAMINATED SHIM COMPANY, Inc.**
2110 UNION STREET ESTABLISHED 1913 GLENBROOK, CONN.

*Manufacturers of the famous LAMINUM shims that peel for adjustment*

If you write maker identify as IEN - 11187

## GET THIS NEW DRUM PUMP Idea Book!

*New ideas in fluids handling*

May we show you what this amazing little Fast-Flo Drum Pump has done in industry after industry?

An air-operated reciprocating pump, the 13½ lb. Fast-Flo operates on air as low as 35 PSI. It screws directly into 2" drum bung openings, or can be clamped on tank sides. *And Fast-Flo does not pressurize drums!*

Fast-Flo can transfer, agitate, dispense . . . and be used as a supply pump for applying, mixing or spraying. It handles an almost unbelievable range of materials, many as thin as isopropyl alcohol, many as thick as cookie frostings.

SEND FOR *FREE* COPY

**GRACO Fast-Flo UNIVERSAL DRUM PUMP**

One of the applications in this new Fast-Flo book may suggest a better way to handle one of your operations, saving time, labor and money. Write today!

GRAY COMPANY, INC.
301 GRACO SQUARE • MINNEAPOLIS 13, MINNESOTA
Regional Offices: New York, Philadelphia, Detroit, Chicago, Atlanta, San Francisco

If you write maker identify as IEN - 11188

**AIR-MITE AIR CYLINDERS**

**Worth Their Weight in GOLDen Man-Hours**

SAVE time, spoilage, cost . . . speed production . . . reduce fatigue . . . on all drilling, reaming, tapping and processing jobs. Available in 1", 1½", 2¼", 3", 4" and 5" diameters; stroke length optional. Single or double action; all mountings.

Write for complete catalog of Air Cylinders and Air Arbor Presses.

**AIRMITE** 4417-L West Carroll Chicago 24, Illinois

If you write maker identify as IEN - 11189

**1 man handles Sheet Steel Faster, Easier with a C-F LIFTER**

C-F Lifters, under one man operation, pick up, carry and unload more sheet steel tonnage per hour than any other method — and at lower cost per ton. Wide carrying angles hold sheets securely — won't damage high grade sheets; tong action insures safe carrying; fast opening and closing adjustments of Lifter jaws permit shifting from one size pack to another in seconds. C-F Lifters are made in standard or semi-special models to handle from 2 to 60 tons.

*Write for Bulletin SL-28 for specific examples of C-F Lifter operation and economy.*

**CULLEN-FRIESTEDT CO.**
310 South Kilbourn Avenue • Chicago 23, Illinois

If you write maker identify as IEN - 11190

# *Steel* SHOP and TOTE *Boxes*

*in 5000 lots, F.O.B. Michigan City, Indiana

## 17½" long x 8" wide x 13" deep

(Inside Dimensions)

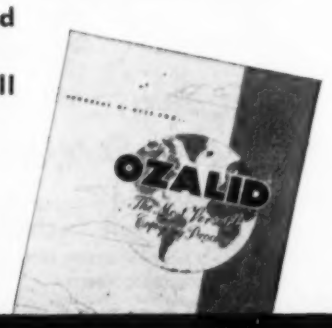
Stubborn insistence on "brand new" tote boxes may mean that you are paying for 4 boxes but getting only one. Thousands of manufacturers have been using these oil and water-tight steel boxes for years, at a great saving. You, too, can save! Just tell us how many you need. We'll give you the lowest prices.

**BARNES and SMITH CORPORATION**
6521-A W. State Street • Milwaukee 13, Wis.

If you write maker identify as IEN - 11191

# SEE HOW YOU CAN SAVE WITH OZALID COPIES!

Write Today for free, 48-page "100's of Uses" Booklet Showing How Direct Copies with Ozalid, Speed Paperwork and Cut Costs in All Departments.

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**OZALID**®

JOHNSON CITY, N. Y.
A Division of General Aniline & Film Corporation
*"From Research to Reality"*
Ozalid in Canada—Hughes Owens Co., Ltd., Montreal.

If you write maker identify as IEN - 11193

## CIRCUIT BREAKER . . Button reset, threads into standard plug fuse base

Source: MECHANICAL PRODUCTS INC.
1822-26 River St., Jackson, Mich.

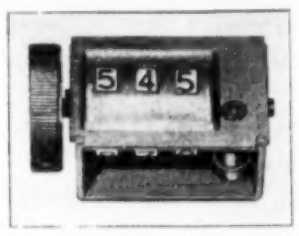
To replace a fuse

New unit, rating 10 amp. on 110-volt ac., has been added to the Mini-Breaker line of 15, 20 and 30-amp. circuit breakers previously described IEN-9449-52. The new breaker, like the original units, trips instantly on a short, operates on a time lag so it does not open on momentary peaks or line surges. The mechanism is trip free so it cannot be reset if a fault persists. It is reset, when normal circuit conditions are restored, by pressing and then releasing the square plunger which extends from the top.

If you write maker identify as IEN - 11194

## COUNTING . . Worm driven unit for footage on recorder tape movement

Source: DURANT MFG. CO.
1930 N. Buffum St., Milwaukee 1, Wis.



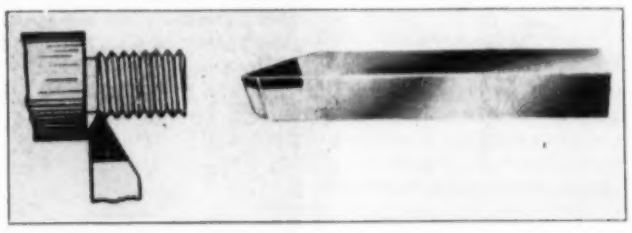

Reads in feet

**Position** of the tape in a recorder, at any time during the recording or playback cycle, is indicated in numerals on this new worm driven three-wheel counter. A spool, fastened to the drive shaft, is rotated by the tape passing through the recorder to operate the counter in both forward and reverse directions. The counting wheels are reset to zero by turning a thumb knob at the left of the housing when a new tape is positioned. Dimensions are 1¾ by 1 by 1 inch.

If you write maker identify as IEN - 11195

## THREADING . . Carbide tipped bit, seven sizes from 3/16 to 3/4 inch

Source: SUPER TOOL CO.
21652 Hoover Road, Detroit 13, Mich.



Line is shown and priced in Circular 531

**Type ETS** is a new carbide tipped bit that has been added to the company's previously developed line of carbide tipped tools. The new unit provides for 60-deg. threading. It is shaped to cut close to a shoulder as shown in the illustration.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

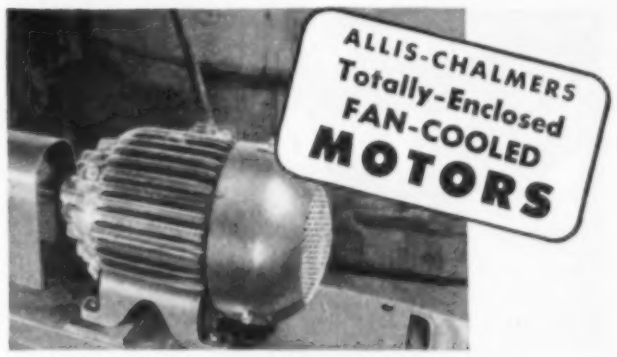
If you write maker identify as IEN - 11196

THE
# 'BIG 3'

*Ask your Burndy Distributor*

**BURNDY**
NORWALK · CONNECTICUT

If you write maker identify as IEN - 11197




## Get These 3 Low Maintenance Features

**1** *Wide Open Air Flow*
No enclosed external air passages to clog. Easy to clean with cloth, brush, air hose or vacuum.

**2** *Cast Iron Construction*
Cast iron frame and conduit box resist corrosion. Well-suited to outdoor operation.

**3** *Pre-lubricated Bearings*
Ball bearings are double-shielded type, pre-lubricated at the factory. In-service lubrication if necessary.

GET COMPLETE INFORMATION on Allis-Chalmers motors for indoor and outdoor service — complete with Allis-Chalmers coordinated control — from your nearby A-C Authorized Distributor or District Office, or write for Bulletins 51B7286 and 51B7149, Allis-Chalmers, Milwaukee 1, Wisconsin.

A-4133

**ALLIS-CHALMERS**

If you write maker identify as IEN - 11198

**modernize materials handling with**

# CARGOTAINERS

Cargotainers are designed to keep pace with modern methods of materials-handling because they are: 1. Sturdy and resistant to shock; 2. Readily folded when not in use; 3. Open mesh so that contents may easily be seen for quick inventory; 4. Efficiently designed for shipment, assembly line use, and vertical storage. Write for information concerning the new CLEARVIEW model with its exclusive base construction for greater durability and better locking and stacking. Dept. IEN, Pittsburgh Steel Products Co., Grant Bldg., Pittsburgh 30, Pa.

**Pittsburgh Steel Products Company**
*A Subsidiary of Pittsburgh Steel Company*

If you write maker identify as IEN - 11199

## New WILLSON Kover-Mor goggles

*with strong, light NYLON eye cups!*

Style CW70
For Welders — with Willson **Spatterproof**® cover glass over **Willson-Weld**® filter lens

Style CC70
For Chippers—with Willson **Super-Tough**® lenses heat treated for extra protection

- New design provides ample room for large-frame prescription glasses
- Standard 50 mm. round lenses are easily replaced and quickly inserted
- Extra ventilation is provided by vents and ports safeguarded by screens
- Rigid metal top bar makes goggles easier to handle—more secure

***Ask your Willson distributor for new Kover-Mor* Welding Goggles —or write for new Bulletin.***

Over 300 safety products carry this famous trademark

**WILLSON**®
*Established 1870*

*Trademark

WILLSON PRODUCTS, INC., 217 Washington Street, Reading, Penna.

If you write maker identify as IEN - 11200

NEW T-J

# Spacemaker

AIR CYLINDERS

**Saves up to 40% Space!**

Streamlined construction of the new T-J Cylinders *eliminates tie rods . . reduces head size . . .* and *saves up to 40% in mounting space!* In addition, a new high in strength is achieved with solid steel heads and heavy wall seamless steel body . . . leakproof construction . . . extra high safety factor. Cylinder walls are precision honed and hard chrome plated for long-life efficiency. Available with new T-J Super Cushion Flexible Seals. Many standard sizes and styles . . . cushioned and non-cushioned . . . for pushing, pulling, lifting, clamping or control jobs. Write for bulletin 8152. The Tomkins-Johnson Co., Jackson, Michigan.

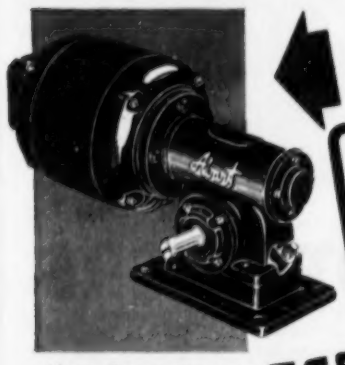
37 YEARS EXPERIENCE T-J

**TOMKINS-JOHNSON**

If you write maker identify as IEN - 11201

**Find out WHY more and more**

# MODERN DESIGNers



choose

# ABART

# GEARMOTORS

Abart Gearmotors are available with output speeds as low as 17½ R.P.M., 1/6 to 5 h.p., ratios 5-4/5 up to 100 to 1.

*SEND TODAY FOR THIS HANDY, "POCKET-SIZE" CATALOG*

For production machinery or adaptations of speed reduction for special equipment—modern designers find that their job is simplified with ABART GEARMOTORS. You, too, can get the same results, satisfaction and national service with Abart.

**Abart GEAR & MACHINE CO.**

4823 WEST 16th STREET • CHICAGO 50, ILLINOIS

*Mfrs. of Gears, Speed Reducers and Gearmotors*

If you write maker identify as IEN - 11202

**Chip Away... PAINT RUST SCALE**

with **AURAND**

**CLEANING TOOLS**

Clean off accumulations of scale, paint, rust or any foreign matter from any hard surface with Aurand Cleaning Tools. Toothed cutting wheels, loose pinioned on rotating head chip away accumulations at high speed. Positive depth shoe prevents cutting into permanent surface and assures uniform cleaning of entire area.

*Two sizes in electric or pneumatic models.*

*FOR FULL DETAILS, WRITE DEPT. 649*

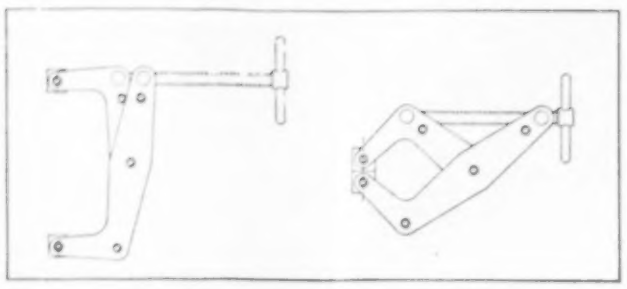
**AURAND MFG. & EQUIP. CO.**

2343 Colerain Avenue • CINCINNATI, OHIO

If you write maker identify as IEN - 11203

## CLAMP . . Screw operated unit holds work to weld, machine, assemble

**Source: CENTINELA INDUSTRIAL SUPPLY CO.**
**11932 Inglewood Ave., Hawthorne, Calif.**



**Case hardened screws, trunnions and blocks**

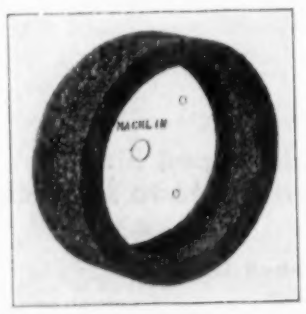
**New size** providing a 6-in. maximum opening and 5½-in. throat depth has been added to the Saxton Kant-Twist line of screw operated clamps. The new unit is characterized by its trunnion mounted pressure blocks in the two jaws. They can be turned to present various face designs for specific work holding. The trunnion at the base of the operating screw is spring backed.

**The clamp** is made of forged steel. It weighs 4 pounds. It exhibits no tendency to "walk" off the work, when the screw is tightened, since there is no turning effort at the jaw blocks. The line now includes six sizes with maximum jaw opening at 1½ to 12 in. and maximum throat depth at 1¼ to 5¾ inches. Weights range from ¼ to 12½ pounds.

If you write maker identify as IEN - 11204

## GRINDING . . Abrasive wheel for carbide tools, to 14 in. diameter

**Source: MACKLIN COMPANY**
**753 Howlett St., Jackson, Mich.**



**Silicon carbide**

**New ring type** wheel is mounted on a steel backing disc for application in a grinding machine to apply on carbide tools and their supporting shanks and bodies. The wheel is known as Type MM. It employs a fine loose abrasive in pellet form embedded in the wheel structure. Flow of the abrasive is maintained constantly between the metal and the wheel.

**The fine grain** pellet produces a first class finish on the tool. The harder grade in the body of the tool resists excessive wheel grooving as the grinding proceeds. The wheels are available at present in standard steel back and cylinder sizes from 6 to 14 in. in a variety of grades for specific requirements.

If you write maker identify as IEN - 11205

**Charging lines** for Freon and methyl chloride refrigerants can be made on the job by using lengths of hose and removable fittings, both of which are available from Resistoflex Corporation, 37-41 Plansoen St., Belleville 9, N. J. Only required tool is a wrench. The hose is light and flexible.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11206

# NO MORE SLIPS!

**NOW make metal, concrete, and wood floors, staircases, areas around machinery and loading platforms SLIP-PROOF — WET OR DRY.**

R-MIR-DEK NON-SLIP COATING is the only lightweight safety floor coating that is Fire retardant, Anti-corrosive, Easily applied, and Oil, Grease, Alkali, and Acid-resistant. Compounded of durable phenolic resins and polymerized oils with everlasting aluminum oxide granules added.

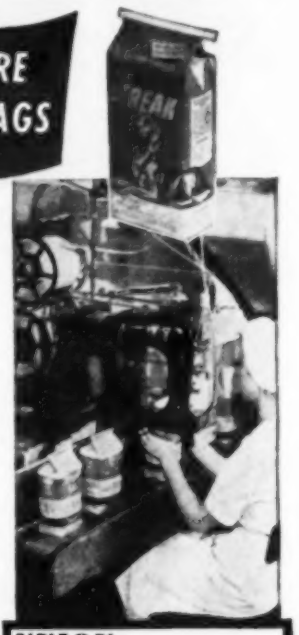
**FREE** 2-color R-Mir-Dek brochure. Write to Department IEN-10

**MIRACLE ADHESIVES CORP.**

214 E. 53rd STREET, NEW YORK 22, N. Y.

If you write maker identify as IEN - 11207

# A BETTER CLOSURE for SMALL PAPER BAGS



UNION SPECIAL'S Style 60000 D bag closing machine, producing the exclusive Dubl-Tape closure, is designed to speed packaging . . . cut costs . . . and improve appearance.

- **FAST—Speed to match output of standard filling and weighing equipment.**
- **NEAT—Produces an eye-pleasing, sales-stimulating package with high merchandising value.**
- **ECONOMICAL—Operating cost per bag is at a minimum . . . uses inexpensive cotton thread and paper tape.**
- **VERSATILE—Adjustable for a wide range of bag sizes, short or long runs.**

Write for BULLETIN No. 100 to get the complete facts on this machine . . . and how it can do a better closing job for you.

UNION SPECIAL Dubl-Tape CLOSURE

**Union Special** MACHINE COMPANY

410 N. Franklin Street • Chicago 10, Illinois

If you write maker identify as IEN - 11208

# Shopping for Ideas...

to add more power, longer life to your electrical equipment?

***Get the Facts!*** **This new brochure gives 30 examples of how production, maintenance and design engineers in major industries are using Class H insulation made with Dow Corning Silicones to:**

1 *make motors last longer*

**in thousands of applications**

. . . where overloads cause frequent failure
. . . where high ambient temperatures limit life of ordinary motors
. . . where rapidly reversing service causes premature failure
. . . where ordinary motors fail because of excessive moisture plus occasional flooding
. . . where cost of down-time is prohibitive

2 *give motors more muscles*

**in thousands of installations**

. . . where high starting loads or periodic overloads cause repeated failure
. . . where space limitations exclude the use of larger motors

3 *satisfy customer demand*

**for better electrical equipment**

. . . where trouble-free service is required
. . . wherever size and weight are important considerations

***Write Today!*** for your free copy! See how Silicone (Class H) Insulation can be used to increase output by as much as 50%, make motors, transformers and solenoids last 10 to 100 times as long as they ever did before.

**Address Dept. DP-10**

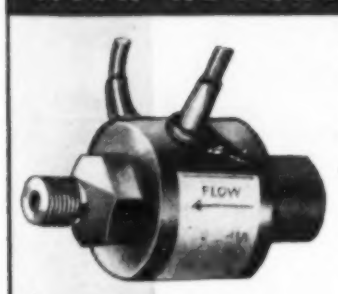
**DOW CORNING CORPORATION** (DOW CORNING SILICONES)
MIDLAND, MICHIGAN

ATLANTA • CHICAGO • CLEVELAND • DALLAS • DETROIT
LOS ANGELES • NEW YORK • WASHINGTON, D. C. (SILVER SPRING, MD.)

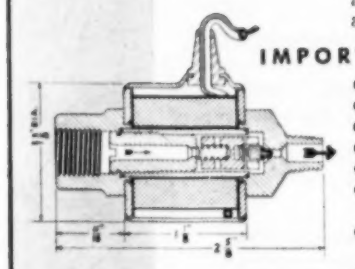
In Canada: Fiberglas Canada Ltd., Toronto
In England: Midland Silicones Ltd., London

If you write maker identify as IEN - 11210

# SOLENOID VALVES WITH ADVANTAGES PLUS




This valve of unique and practical design has proved itself in the past seven years to have extreme endurance and reliability. Important parts are stainless steel and no gaskets are used whatsoever. All parts silver brazed for rigidity. Look no further for a solenoid valve that will give years of trouble free, efficient service. Write today for full information. Samples available for inspection and test.



**IMPORTANT FEATURES:**

- All brazed construction
- No mounting brackets
- Weight 5 ounces
- Positive seal at any pressure
- Operates in any position
- Operates up to 1000 cycles per minute
- Power consumption 1 to 3 watts
- Pressure up to 200 p.s.i.
- Straight through flow

*Specialty* PRODUCTS CO., INC.
3725 Monitor Ave. • Minneapolis 16, Minnesota

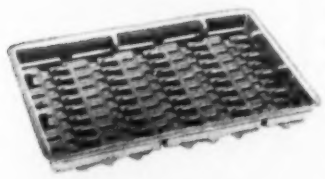
If you write maker identify as IEN - 11211

## Strong enough for every job... Light enough to do it easier...

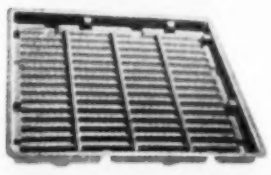
# U.S. Royalite Tote Boxes

Tough, versatile tote boxes made with U. S. Royalite combine amazing strength with surprising lightness. For example, a tote box formed of this thermoplastic with these inside dimensions, length 18 inches, width 12 inches and depth 6 inches, weighs only 3.8 pounds! Add to this the facts that U. S. Royalite Tote Boxes are waterproof, not affected by oils, alkalies and most acids, have a *one-piece* construction, and you'll see why they give real production economy and efficiency.

U. S. Royalite Tote Boxes come in a wide variety of shapes and sizes in permanent colors. Other important facts about U. S. Royalite are listed below. For complete information about this tough thermoplastic's uses in tote boxes and and other products, write to Dept. IEN-3.



Turbine Blade Tray



Filter Element Tray

**Check List of U. S. ROYALITE Advantages:**

- ✓ Lightweight
- ✓ Tough
- ✓ Non-splintering
- ✓ Non-warping, non-corrosive
- ✓ Impervious to oils, most acids, alkalies
- ✓ Highly resistant to impact
- ✓ Prefinished to your specifications
- ✓ Easily formed on low-cost tools
- ✓ Waterproof
- ✓ Color-permeated throughout
- ✓ Available in sheets
- ✓ Stable under changing atmospheric conditions
- ✓ Exceptional electrical insulating qualities
- ✓ Low rate of heat conductivity

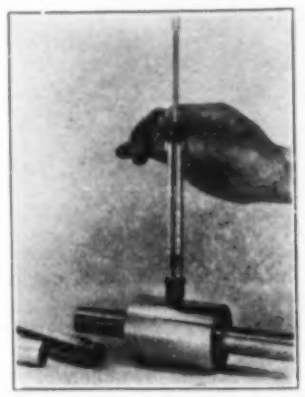
U.S. ROYALITE
TOUGH PLASTIC PRODUCTS

UNITED STATES RUBBER COMPANY
2638 NORTH PULASKI ROAD, CHICAGO 39, ILLINOIS

If you write maker identify as IEN - 11213

## TESTING . . Portable instrument reads metal hardness in standard terms

Source: KURT ORBAN COMPANY
204 E. 43rd St., New York 17, N. Y.



Imported

**Sklerograph** is a new pocket size portable hardness tester employing a ball-end rebounding bar. The bar is raised to a latching height, then is released to drop on the test surface. Rebound is read on the instrument scale and converted, with tables supplied for this purpose to Shore, Rockwell B or C, or Brinell. Objects weighing less than about 4 lb. should be placed on a solid support prior to making the test.

**Model M** weighs 5¼ oz., including its container. It measures ¾ by 6½ in. and lists at $65. Model D weighs 9 oz., is 1 by 7¼ in., lists at $75.

If you write maker identify as IEN - 11214

## INSULATING . . Laminated plastic, plain or copper clad, one or both sides

Source: PLASTILIGHT INCORPORATED
479-83 Canal St., Stamford, Conn.

Data sheets upon request

**Epoglas** trade names a new glass cloth laminate. It is available in sheets measuring 24 by 36 in. and in a thickness range from 0.003 to 0.500 inches. The new material is suited for use in panels and also in etched, plated and printed circuits. The epoxy resin employed in the construction has excellent bond strength with copper when laminated under heat and pressure.

**The sheet** can be employed in dip soldering. It will not delaminate. It can be worked by the usual fabricating processes. Service temperature is to 175 deg. C.

If you write maker identify as IEN - 11215

## RELAY . . Miniature sealed unit, six pole, double throw, 3½ ounces

Source: UNION SWITCH & SIGNAL
1800 Braddock Ave., Dept. 67, Pittsburgh 18, Pa.

One of a line

**Union Type M** is a new hermetically sealed relay that meets Military Specifications MIL-R-5757 A and B. Contact rating is 2 amp. on 26-volt dc. Coil resistance is 325 ohms.

**Shock resistance** is to 40 G for 0.01 sec. under any condition. Vibration range is 10 to 55 cps. Temperature range is from minus 65 to plus 125 deg. C. Maximum pull-in is at 18 volts on maximum rated temperature. Maximum drop-out is 13 volts at the same temperature. Minimum life expectancy is 1,000,000 operations.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11216

SEND FOR YOUR FREE COPY

NEW ACME BUSHING CATALOG

Contains America's LARGEST BUSHING Selection

Features 2 Standards
A.S.A. Standard *Plus* Acme Standard

Makes Bushing Procurement Easy . . . Fast! Send For Your FREE Copy Now!

Simplifies, speeds bushing selection. Packed with valuable data. Saves you time and trouble. Also includes liners, leader pins, dowel pins, locating jigs, etc.

*Serving Industry For 28 Years*

ACME INDUSTRIAL COMPANY
215 N. Laflin St., Chicago 7, Illinois

MANUFACTURERS OF DRILL JIG AND FIXTURE BUSHINGS

If you write maker identify as IEN - 11217

YOU CAN DO IT *FASTER with* HANSEN ONE-HAND TACKER

Model T-1 tacking wood reinforcement on airplane braces.

**Only ONE of 1001 Uses**

TACKING wood reinforcement on airplane braces is but ONE of 1001 uses of HANSEN one-hand Tacker. Other uses include: fastening screens on TV sets, tacking radio and TV wires, refrigerator door gaskets, chair and auto-seat covers, insulation, etc.

(MODEL T-3-4 HANSEN TACKER)

Made in . . . 36 different models; for driving . . . 80 sizes of staples, the Hansen line offers you a model suited to your individual needs.

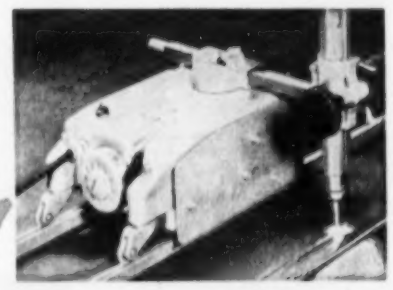
REQUEST BOOKLET TODAY

A.L. HANSEN MFG. CO.
5051 RAVENSWOOD AVENUE • CHICAGO 40, ILL

If you write maker identify as IEN - 11218

## *SAVE TIME AND MONEY with this*

OXWELD Trade-Mark MACHINE CARRIAGE



Here is a new lightweight machine carriage—the OXWELD CM-45—that will mechanize literally dozens of oxy-acetylene jobs in large or small metalworking shops, and do them better than the most skilled hands.

You save money when you let the CM-45 do your cutting, beveling, flame-treating, or special welding jobs. Its efficient operation saves oxygen and acetylene as well as time, and rejects are reduced to a minimum.

For further information, call your nearest LINDE representative today. Ask for a free copy of Form 7839. No obligation.

LINDE AIR PRODUCTS COMPANY
A Division of Union Carbide and Carbon Corporation
30 E. 42nd St., New York 17, N. Y. Offices in Other Principal Cities
In Canada: Dominion Oxygen Company, Limited, Toronto

"Oxweld" is a trade-mark of Union Carbide and Carbon Corporation.

If you write maker identify as IEN - 11219

HEVI DUTY DRY TYPE TRANSFORMER *complete with* Primary Circuit Breaker *for small* POWER and LIGHTING LOADS

Sizes from 15 to 100 KVA

• Vacuum pressure impregnated coils . . . efficient air chimney ventilation . . . adequate insulation and coil blocking . . . conservative design . . . liberal use of materials . . . removable top cover . . . sheet steel case and easy access to leads are a few of the advantages built into Hevi Duty Dry Type transformers to assure many years of quiet trouble-free service.

*Write for bulletin HD-499*

HEVI DUTY ELECTRIC COMPANY
HEAT TREATING FURNACES HEVI-DUTY ELECTRIC EXCLUSIVELY
DRY TYPE TRANSFORMERS — CONSTANT CURRENT REGULATORS
MILWAUKEE 1, WISCONSIN

If you write maker identify as IEN - 11220

Feature-packed!

# New SQUARE D SIZE 4 STARTER

**Write for BULLETIN 8536...**

Square D Company, 4041 North Richards Street, Milwaukee 12, Wisconsin

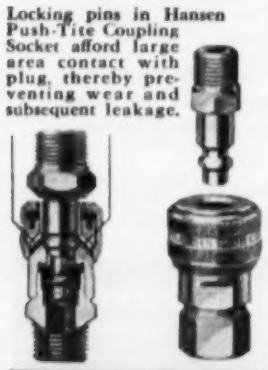
ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS

SQUARE D COMPANY

If you write maker identify as IEN - 11221

# HANSEN COUPLINGS Give You 2 Big Advantages

Locking pins in Hansen Push-Tite Coupling Socket afford large area contact with plug, thereby preventing wear and subsequent leakage.



● To connect a Hansen coupling, you merely push the plug into the socket with one hand. Flow is instantaneous. To disconnect, push back sleeve on socket . . . coupling disconnects. Flow is shut off instantly and automatically.

*One-way shut-off, two-way shut-off, and straight-through types. Write for Catalog*

THE HANSEN MANUFACTURING COMPANY
4011 WEST 150th STREET • CLEVELAND 11, OHIO

If you write maker identify as IEN - 11222

# Chicago MOUNTED Wheels

...now even better with **79E BOND**

**Buy Chicago Mounted Wheels—bonded with 79E Bond—and you'll never use any other!**

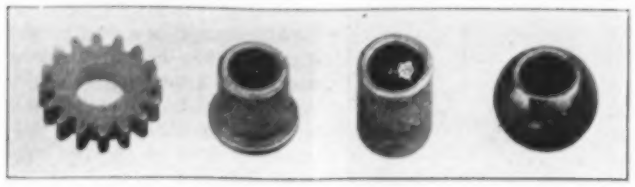
**79E**—a tough new bond exclusive with Chicago Wheel—is the sensation of the industry . . . it does a BETTER grinding, burring, and finishing job FASTER. A size and shape for every use. Deliveries are excellent—Order today.

**CHICAGO WHEEL** & *Mfg.* Co.
Dept. N • 1101 West Monroe Street, Chicago 7

If you write maker identify as IEN - 11223

## METAL PARTS . . To specification, are made of powdered bronze or iron

Source: SYMMCO INCORPORATED
853 Symmco St., Sykesville, Pa.



**Four basic shapes**

**The company** announces its start in production of parts made of powdered bronze or powdered iron. Production includes blending to desired composition, screening, briquetting under pressure in precision dies, sintering in a controlled atmosphere furnace, sizing, if required, and vacuum impregnating if the part is to be employed as a bearing. The finished part requires machining only when there are holes at right angles to each other or recesses that do not permit ejecting from the briquetting press. Parts can be supplied to 1½ in. in greatest dimension. Pre-lubricated plain bushings are in stock.

If you write maker identify as IEN - 11224

## TESTING . . Electronic meter reads per cent of moisture in wood

Source: VICTOR J. KRIEG INCORPORATED
611 Broadway, First Floor, New York 12, N. Y.

**Made in Germany**

**Two electrodes,** on the upper face of the housing of this new moisture meter, are pressed against a wood sample in which moisture is to be measured. In this position, a button is depressed on the housing face to connect the measuring circuit which determines moisture content in terms of electrical conductivity of the the wood. The dial reads from 6 to 24 per cent. The instrument measures about 4 by 2¼ by 7½ inches. It weighs 1½ pounds. A case can be supplied as shown.

**Application** is on wood of various types as it is taken from a kiln. The sample should be split through the center when thickness is ¾ in. or more. The surface should be removed by planing, prior to measuring, when thickness is less than ¾ inch. Power is supplied by a three-volt battery in the housing.

If you write maker identify as IEN - 11225

**Suction blowers** remove dust and litter from Chicago buses when the buses are driven to a cleaning station and brought into position at a canvas bellows in front of the blowers. The bellows fits over the bus doorway to create powerful suction in the bus. The blowers deliver to a cinder block room with a wire mesh roof through which the delivery pressure is released. The two 28-in. blowers create a 30 mph. breeze in the bus that draws the litter from below the seats and from the aisle pronto and thoroughly. Chicago Transit Authority, 253 Merchandise Mart Plaza, Chicago 54, Ill., designed the installation for its own use and will tell you about it.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11226

A PAID NEWS ADVERTISEMENT BY CARBORUNDUM CO.

## FREE CATALOG . . . New Coated Abrasive Selector by CARBORUNDUM

**This new** "Coated Abrasive Selector for the Average Grinding Job" helps you choose the right coated abrasive for any machine or hand abrasive operation—on metals, non-metallics, or wood.

**The recommendations** given are complete—including grain sizes and types, backings, coatings, product sizes, prices and packaging information. Metalworking recommendations include coated abrasives for hand, portable and disc sanding; and for contact wheel, platen, and slack-of-belt machine grinding. Recommendations for roughing, polishing, and finishing glass and other non-metallic materials are also shown. For woodworking, coated abrasives are listed for hand sanding and finishing, and machine sanding with the following types of sanders: oscillating, flat belt, edge, turning, moulding, drum, disc, and others.

**A special section** lists contact wheels—both solid and universal hub, serrated and plain. The "61" Port-A-Belt grinding attachments are also described fully. In addition, you will find a list of machine manufacturers—giving machine model numbers and belt sizes.

**It's free!** Get this handy catalog today. Write to Dept. IEN 82-310.

*"Carborundum" and "Port-A-Belt" are trademarks of The Carborundum Company, Niagara Falls, New York*

82-310

THE CARBORUNDUM COMPANY
Niagara Falls, New York

If you write maker identify as IEN - 11227

# In Your Design?

**PITCHLIGN**
THE BEARING THAT OUT PERFORMS ALL OTHERS

**CHECK THESE FEATURES!**

- Pitch line roller alignment.
- Positive cage control.
- Thrust is absorbed by the flanges, NOT the cage.

PITCHLIGN Trade-Mark
**ROLLER BEARINGS**

Pitch circle alignment with cage contact at the extreme roller length controls the rollers at all times. Get the facts!

*Write Today!*

*Ask for Bulletin SF-667*

RBC
ROLLER BEARING COMPANY OF AMERICA
SULLIVAN WAY • WEST TRENTON, N.J.

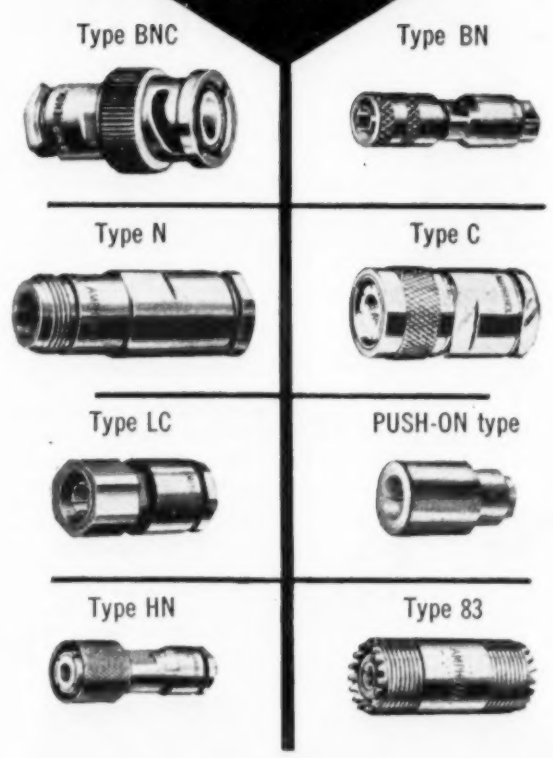
If you write maker identify as IEN - 11228

AMPHENOL

low r f loss — perfect match

# R F CONNECTORS

never-failing continuity
tested materials




AMPHENOL R F connectors are made in a variety of types but there is no variety in AMPHENOL's standards of manufacture—each connector is made with skill gained from over 20 years experience in electronics. Made in strict accordance with government R F specifications, AMPHENOL R F connectors are the most efficient connecting link between coaxial cables now available.

AMERICAN PHENOLIC CORPORATION
*chicago 50, illinois*

AMPHENOL

If you write maker identify as IEN - 11230

## TRUCKS AND TRAILERS MOVE FASTER, EASIER ON NEW WHEELS BY

# ELECTRIC

Modernize baggage-trucks, industrial trailers, floor trucks, mail carts and other portable equipment with new ELECTRIC wheels **for faster, easier handling.** There is an ELECTRIC wheel for every job.

Our 65 years of engineering "know-how" assures you of top performance from ELECTRIC equipment.

ELECTRIC wheels are furnished with or without roller bearings to fit your own axles or complete with axles—steel tires, molded-on-tires, or pneumatic tires. All types are available in a full range of sizes.

Our experienced engineers are always at your service.

**WRITE FOR COMPLETE INFORMATION**

**ELECTRIC WHEEL CO.**

**2814 SPRUCE · QUINCY, ILLINOIS**

If you write maker identify as IEN - 11231

Low-cost disposable

# KIMWIPES*

clean goggles faster—better—safer!

Why let your employees take chances with dirty, scratchy cloths—used over and over again? Kimwipes industrial wiping tissues clean goggles and face shields far better because they're used only once; yet are no more expensive to use.

These clean, soft, absorbent tissues are 100% free of abrasive matter. Absorb up to 8 times their own weight in liquids. And Kimwipes are dispensed in handy "one at a time" packages that can be located at several spots in your plant.

You'll find dozens of other uses, too, from wiping up spilled liquids to precision polishing and inspection wiping. Try a few boxes soon and see if you haven't found the all-purpose wiping material you've always needed.

*Two tissue sizes, 15" x 18" and 5" x 9". For information, write to Kimberly-Clark Corporation, Neenah, Wisconsin.*

KIMWIPES INDUSTRIAL WIPING TISSUES

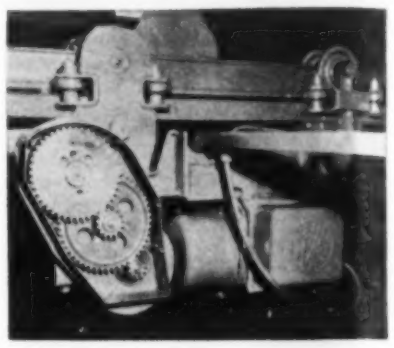
A Product of **Kimberly-Clark**

*T. M. REG. U. S. & FOREIGN COUNTRIES

If you write maker identify as IEN - 11233

## CONVEYING . . Monorail trolley with motor drive and speed change gears

**Source: FORKER CORPORATION**
**2036 Random Road, Cleveland 6, Ohio**



**Wheel base measures 25 inches**

New **assembly** in the Ohio Tramrail line of motor driven trolleys is available in the four-wheel design, shown in the illustration, and also in an eight-wheel arrangement. Its driving motor is connected by double reduction straight spur gears to the drive wheels. These wheels and the idlers ride the track but do not have any flanges. The unit is kept in position laterally by rollers on vertical axles in front of and behind each track wheel. Any one of 18 travel speeds can be obtained, by interchanging the gears, for a range between 56 and 600 fpm.

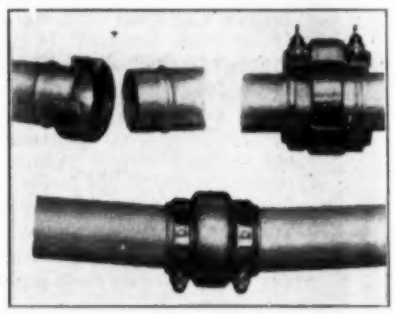
**The drive wheels** are crowned to take the rolling load close to the rail web. Gear shrouds and guards are welded to the main frame plate to rib and stiffen the housing. The gear shafts are alloy steel ground and polished. The wheel bearings are double row anti-friction precision ground design. The shafts are supported on bronze bearings.

**Lubrication** is through Zerk-Alemite fittings. Standard operating voltage and electrical characteristics can be specified. Also to specification is a pendent control, a cab attached to the trolley for the operator or an automatic remote dispatch arrangement. The current conductor bars are assembled in a metal housing directly under the track. The current collector shoe rides in protected position inside the trolley yoke.

If you write maker identify as IEN - 11234

## TUBE FITTING . . Clamp coupling and sealing liner for beaded tubes

**Source: RUBBER TECK INC.**
**19113-17 Hamilton Gardens, Gardena, Calif.**



**Data Sheet 1100F**

**Sizes** range from 1 to 4½ in. in outside tube diameter for this new flexible fluid tube line connector. It is manufactured under license from Northrup Aircraft. It will seal vacuum to 28½ in. of mercury, or pressure to 160 pounds.

**The coupling** consists of an inner seal ring that bears upon the lips of opposing ends of two tubes, a clamp assembly that rides over the seal and also over beads formed in the tubes, and two adjustable clamps that hold the complete unit in place. There is sufficient flexibility to permit 4-deg. misalignment between two runs of tube. The coupling remains serviceable in a temperature range from minus 65 to plus 160 deg. F. The metal parts are made of aluminum. The seal is synthetic rubber.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11235

**HERE'S ONE MAINTENANCE EXPENSE YOU CAN CUT with 75%**

# WILSHIRE

**POWER SWEEPERS**

**WILSHIRE Power Sweepers cut sweeping costs as much as 75% . . . but that isn't all! They keep floors brighter and cut scouring and scrubbing costs. And because they pick up dust as well as debris they help to keep walls, windows, lighting fixtures, machinery and merchandise cleaner. They pay for themselves in 6 months or less . . . and we can prove it.**

**WILSHIRE POWER SWEEPER CO.**
**526 W. Chevy Chase Drive, Glendale 4, Calif.**

WRITE FOR DETAILS

If you write maker identify as IEN - 11236

**CLUTCHES by ROCKFORD**

## Lifts, Carries and Places Any Size; Shape or Weight

**KRANE CAR, built by Silent Hoist & Crane Company, picks up a load of any shape or size, up to ten tons, transports it and spots it accurately, smoothly and safely. ROCKFORD CLUTCHES control the power transmission from its one-man-operated single engine. Let ROCKFORD clutch engineers help with your power control problems.**

B-W ENGINEERING MAKES IT WORK
B-W PRODUCTION MAKES IT AVAILABLE
ENGINEERING BULLETIN SENT ON REQUEST

**ROCKFORD CLUTCH DIVISION** BORG-WARNER
**303 Catherine Street, Rockford, Illinois, U. S. A.**

If you write maker identify as IEN - 11237

# Protects AIR TOOLS AND EQUIPMENT

**against rust, scale and condensation in the air line . . . provides constant lubrication**

The Keller Lubricator-Filter operates automatically when air tools or equipment are in operation. Filter removes moisture as well as solids—easily cleaned by opening drain cock at bottom. Oil feeds from the lubricator through an upright wick—no flooding or waste when tools are not in use.

Transparent bowls show when filter needs draining, or when light spindle oil should be added to lubricator. Write for descriptive Bulletin #65-5.

*Send for* **illustrated descriptive bulletin and detailed information**

**Keller Tool Company**
**GRAND HAVEN, MICHIGAN**

If you write maker identify as IEN - 11238

One of countless different applications where Rockwood Ball Valves outlast and out-perform all other makes.

## *Do you need a* MAINTENANCE-FREE VALVE?

**Maintenance-Free in Coolant Service.** Previous valves on this grinding machine were repaired or replaced at least once weekly. The present Rockwood Ball Valves, operating 500 times daily, have required no maintenance in over a year.

Other features: full *round* flow, positive leakproof seating, quick opening and closing. Tested and listed by Underwriters' Laboratories, Inc. Write for complete details. Rockwood Sprinkler Company, 40 Harlow Street, Worcester 5, Mass. Distributors in all principal cities.

ROCKWOOD

**ROCKWOOD *FULL-FLOW* BALL VALVES**
**THE FLOW IS AS ROUND AS THE PIPE ITSELF**

If you write maker identify as IEN - 11239

McGILL MANUFACTURING CO., INC. 100 N. Lafayette St. Valparaiso • Indiana

If you write maker identify as IEN - 11240

## HOW YOU CAN *hear better* TO TELEPHONE

Loudness of Noise Reduced 50%* Inside a

**BURGESS-MANNING**

*Acousti-Booth*

- Thick walls of sound absorbing material, patented design, and craftsmanlike construction reduce the loudness of noise by 50%*... leaving a zone of quiet for ease of telephoning.
- Doorless construction makes for a light, airy, well ventilated booth ... easy to keep clean ... low maintenance.
- Easy to move ... Suited to any noisy location ... Wall and floor models ... Handsome in appearance.

Write for Bulletin A-107

Model 211 Floor Model

* *Based on studies by a prominent research organization.*

**BURGESS-MANNING COMPANY**
*Architectural Products Division*
5970-A Northwest Highway, Chicago 31, Illinois

If you write maker identify as IEN - 11241

# Backstand belts cut costs!

**Learn more about this money-saving method**

The backstand-belt method of metal polishing is being used in more and more plants. Why? Because it saves time, cuts costs. Belts cut faster, cooler than set-up wheels – and cut down on the number of your operations. To learn more about this modern method of metal finishing, send for Armour's free booklet, "Backstand-Belt Polishing."

**mail this coupon today**

Please send booklet "Backstand-Belt Polishing."

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

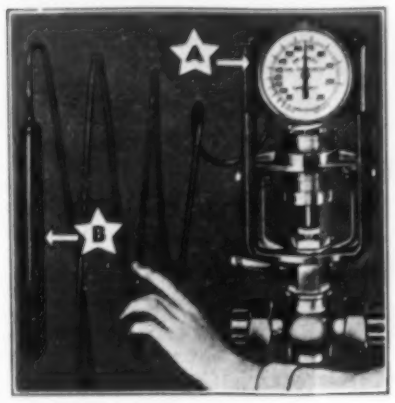
ARMOUR *Coated Abrasives*

Armour and Company • North Benton Road • Alliance, Ohio

If you write maker identify as IEN - 11242

## VALVE .. Bellows operated, throttles flow for temperature control

Source: POWERS REGULATOR CO.
3437 Oakton St., Skokie, Ill.




Bulletin 330

**Liquid expansion** in a temperature sensitive bulb acts upon a bellows in this new Powers 11-MF self-operating regulator to throttle steam flow in order to maintain a predetermined temperature in solutions employed for plating, anodizing, bonderizing, cleaning, pickling, rinsing, washing, degreasing.

**The valve assembly** A is available in ½ to 1½-in. sizes, for two temperature ranges between 110 to 155 deg. F. and 145 to 205 deg. F. Standard equipment includes a built-in thermometer and a double union bronze body and built-in stem lubricator.

**The thermal bulb B** is plastic coated for resistance to attack by the solution in which it is immersed and to prevent short circuiting so there is no need for electrical insulation. It connects to the valve through an 8 or 15-ft. length of tube.

If you write maker identify as IEN - 11243

## HEATING .. Utility space unit for operating cabs and small areas

Source: YOUNG RADIATOR CO.
719 Marquette St., Racine, Wis.

Catalog 6253

**Locomotive cabs,** ship's quarters, small shops and garages are typical points for application of this new utility heater. It is built for use with 35-lb. hot water or 5-lb. steam. It can be installed free standing, wall hung or flush mounted. It is available with defroster equipment for mobile applications.

**Air is circulated** by a propeller type fan driven by an enclosed motor. Controls include a fresh air damper and a rheostat for variable speed motor operation. The heating element is made up of brass tubes with copper fins. The fan, core, piping and wiring are accessible after loosening two screws and removing the front panel.

If you write maker identify as IEN - 11244

**Flame red** is the new color that features the safety cans made by Justrite Mfg. Co., 2059-63 N. Southport Ave., Chicago 14, Ill. The cans are available in a range of sizes from a pint to five gallons. The color complies with the Safety Color Code for instant identification of safety equipment and safety hazards.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11245

If you write maker identify as IEN - 11246

**HARDINGE** ELMIRA, N.Y. COLLETS for LATHES and MILLERS

Precision work requires precision collets. HARDINGE Draw-in Collets assure you of all-essential accuracy plus durability and economy . . . performance that has established leadership since 1890.

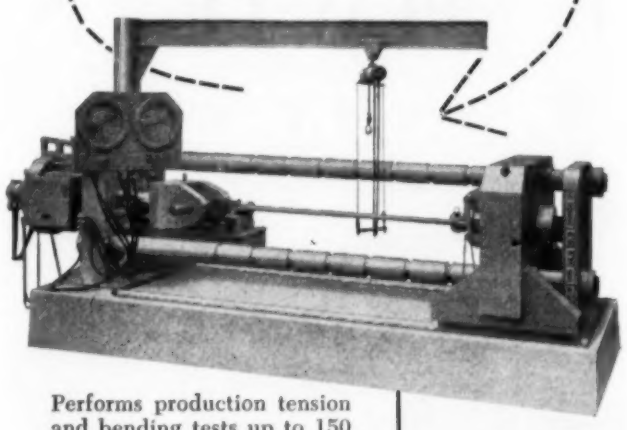
HARDINGE Collets symbolize accuracy, long life, and low cost because they are hardened and ground both internally and externally, have heat treated threads — and cost no more than ordinary collets.

**HARDINGE COLLETS**
*For All Lathes and Automatics*
**Backed by 60 Years of Manufacturing Experience**

**HARDINGE BROTHERS, INC., ELMIRA, N. Y.**

If you write maker identify as IEN - 11247

*Economical* **HUFFORD**
**150 TON**
**TENSILE TESTER**



Performs production tension and bending tests up to 150 tons. Larger and smaller models also available. Designed to relieve expensive laboratory testers *at a small fraction of laboratory equipment cost.* Push-button operation, single pressure control. Direct reading gauges. *Equipped with 500 lb. capacity air hoist.* Many other features. *Write for details!*

HUFFORD Machine Works Inc. EL SEGUNDO, CALIFORNIA
1700 E. Grand Avenue
El Segundo, California

If you write maker identify as IEN - 11248

*New* usalite

**DUO-FLEX**
Only Industrial Flashlight with Built-in DUAL LIGHTING SYSTEM!

Flexible Extension Probe Light *PIN-POINTS* Light Where You Want It

Extends 10½" beyond flashlight—reaches around corners, in deep recesses, through small clearances —gets into all hard-to-get-at dark spots inaccessible with ordinary flashlights. Ideal for close inspection of products and machinery.

No. DF-22
2 CELL
*REG. PAT. U.S. & CAN.

*All These Extra Advantages!*

Powerful fixt focus bulb and reflector throw 1,000 foot beam for long range lighting; red "danger zone" lens ring; heavy-walled plastic case; detachable end cap with spare bulbs and snap-back ring; 3-way safety switch.

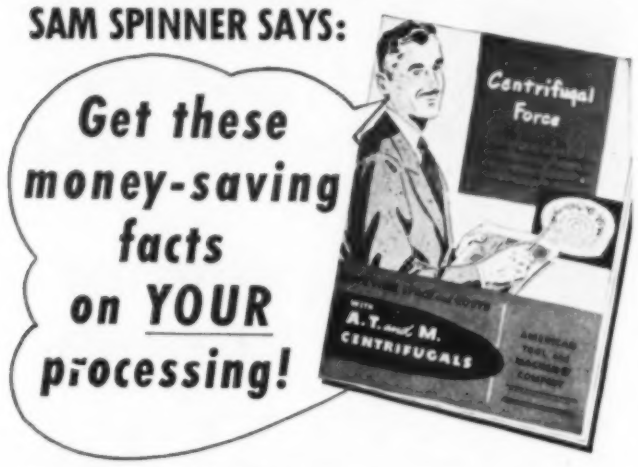
Order Duo-Flex from your local distributor or write for descriptive sheet.

U. S. ELEC. MFG. CORP.
222 West 14th Street, New York 11

USALITE Flashlights and USALITE Leak-Proof Copper-Sealed Batteries

*If you write maker identify as* IEN - 11249

## SAM SPINNER SAYS:




If you use any of these processes:

**Separation . . . Extraction . . . Impregnation . . . Coating . . . Precipitation . . . Draining . . . Dehydration . . . Thickening . . . Sedimentation . . . Filtration . . .**

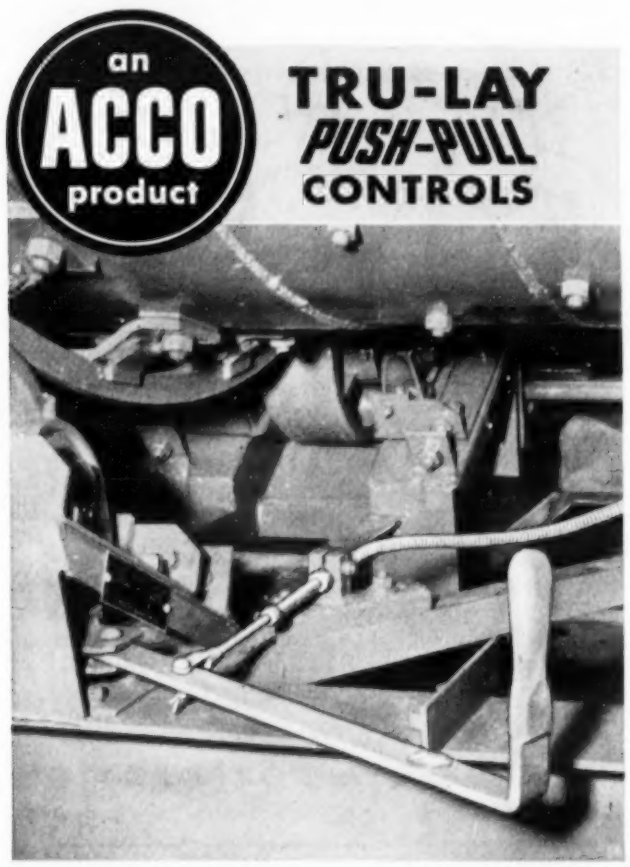
here's a free booklet packed with information on how you can literally *spin* your way into faster, better processing at lower cost. AT&M's booklet, "Centrifugal Force," brings you eight pages of illustrated facts showing why centrifuging is replacing older processing methods in all types of industry. Learn how you can cut your own production time and costs with modern AT&M centrifugals. Write for your free copy of "Centrifugal Force" to American Tool & Machine Company, 1417 Hyde Park Ave., Boston 36, Mass.

SAVE TIME, SPACE AND COSTS WITH

**A.T. *and* M.**

CENTRIFUGING

*If you write maker identify as* IEN - 11250




## *Snake into Tight Spots*

• The TRU-LAY Push-Pull Control illustrated above is on a No. 835 Barber-Greene hot mix dryer. The outside control lever is readily accessible and the PUSH-PULL snakes around obstructions into a tight spot where it engages a clutch.

Flexibility of TRU-LAY Push-Pulls makes them easy to install. This is but one of hundreds of examples of how TRU-LAY Push-Pulls can eliminate the time you would spend designing, making and installing complicated rigid parts. Push-Pulls are ruggedly built, carry their own lubrication and are sealed against dirt and moisture. Capacities up to 1000 pounds input.

*If you have a problem in remote control, write our Detroit office today for a copy of DH-287*

TRU-LAY *PUSH-PULL* CONTROLS

ACCO

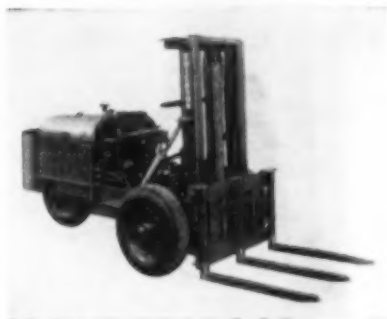
AUTOMOTIVE AND AIRCRAFT DIVISION
AMERICAN CHAIN & CABLE

601 Stephenson Bldg., Detroit 2
2475 Porter St., Los Angeles 21 • Bridgeport, Conn.

*If you write maker identify as* IEN - 11252

## TRUCK . . Engine driven fork lift, 2 and 3 ton, for plants and yards

**Source: ERICKSON POWER LIFT TRUCKS INC.**
**1423 Marshall St. N. E., Minneapolis 13, Minn.**



**Three wheel design**

**Four speeds,** forward and reverse, in this new power lift truck provide for travel to 25 miles per hour. Two new sizes, known as Model 4R and Model 6R, rate 2 and 3 ton respectively. The operator rides in seated position between the International gasoline engine and the fork assembly.

**Standard lift** is 108 inches. Height of the uprights, in lowered position, is 80 inches. The truck operates on pneumatic tired wheels so it can ride over rough or soft ground, clear high sills and the tops of steep ramps. A ballast box at the rear, over the steering wheel, permits varying the balance weight to meet changing conditions.

*If you write maker identify as* IEN - 11253

## BRAZING . . Silver alloy rod for carbide tools and stainless steels

**Source: EUTECTIC WELDING ALLOYS CORP.**
**40-42 172nd St., Dept. P, Flushing 58, N. Y.**

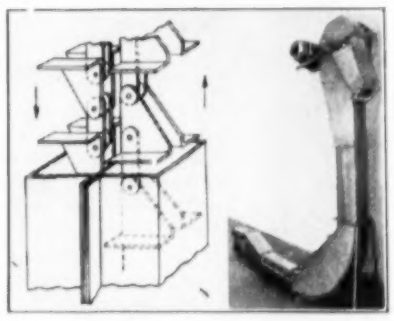
**Features low melting point**

**EutecRod 1602** is available in four rod diameters from 1/16 to 1/8 in. to braze carbide tools, alloys and stainless steels. The new material flows smoothly, permits the use of silver brazing for joints containing oxides of chromium, vanadium, nickel.

*If you write maker identify as* IEN - 11254

## CONVEYING . . Enclosed flight unit is dust tight for granular materials

**Source: GIFFORD-WOOD COMPANY**
**3 Hudson Ave., Hudson, N. Y.**



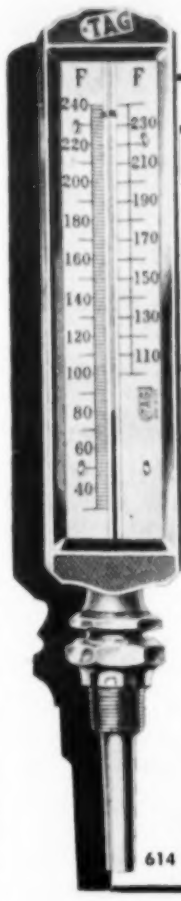
**Flights form links**

**Flowmaster** is a new enclosed flight type continuous flow conveyor to move granular materials horizontally, along inclined planes or in vertical direction in any desired combination. An enclosed endless chain is fitted with flights that ride inside and essentially span the enclosed space. A motor drive keeps the chain in motion. Materials can be loaded and discharged without need for attention. The equipment is subject to specification for size, capacity and layout.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11255

*If you write maker identify as* IEN - 11256



## TAG THERMOMETERS

**Industrial Glass Types**
Available in all required forms, scale lengths and ranges up to 1000°F. Bulletin T-29 gives complete information. Send for your copy.

**ASTM or Standard Grade etched stem thermometers**
Certified extreme precision grade thermometers are available singly, or in matched sets of nine, reading from −36° to +760°F., with overlapping ranges. Also standard grade for most laboratory, industrial and general testing work. Available armored or unarmored. Send for Bulletin T-28.

**Hydrometers**
In both plain and combined types, have easily read scales and many refinements to enhance accuracy. Certified hydrometers furnished with individual accuracy certificates.

**WESTON ELECTRICAL INSTRUMENT CORPORATION**
614 Frelinghuysen Avenue Newark 5, New Jersey

*If you write maker identify as* IEN - 11257

## For Precision Flatness and Finish... on Metals, Ceramics, Quartz and Plastics...

## *USE A CRANE LAPMASTER*

With a Lapmaster you can lap different parts in one cycle—lap a wide range of parts of different materials in short or moderate production—lap identical parts at tremendous production rates and maintain flatness to one light band (.0000116"), surface finish to 2 or 3 RMS. *Production lapping may be the solution to your problem. Get all the facts.*

**Full facts on Lapmaster production lapping—Flatness interpretations available in two illustrated booklets. They are yours for the asking.**

JOHN CRANE

**CRANE PACKING COMPANY**
*LAPMASTER DIVISION*
1815 CUYLER AVENUE • CHICAGO 13, ILLINOIS

*If you write maker identify as* IEN - 11258

## Best Buy in Hoists!

***...and here's why!***

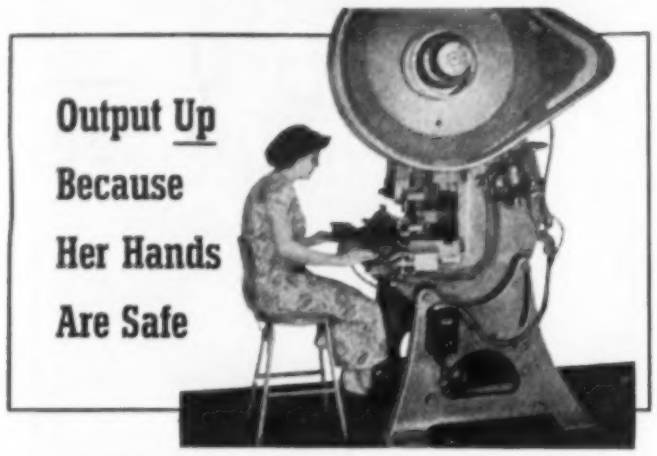
1. Low operating cost.
2. Safe! The *only* hoist with self-locking, double worm gear which acts as its own load brake.
3. Steel from hook to hook—heavy, positive acting limit switches.
4. Dual voltage motors quickly convert from 220 to 440 volts or vice-versa.
5. Just hang it up, plug in, pull cord (one-hand control) and it goes to work.
6. Assured performance, backed by the exclusive Whiting Warranty Plan.
7. Most standard models shipped from stock.

WHITING ELECTRIC CHAIN HOISTS

***Send for Illustrated Bulletin H-112***

**WHITING CORPORATION**
15629 Lathrop Avenue, Harvey, Ill.

If you write maker identify as IEN - 11259




Operator confidence soars—and so does production—with the Schrader Press Control. Definitely a two-hand device, it is designed so that the hands that feed the die must also operate the press. Neither valve can be tied down to get one-hand operation.

This *increased safety* of Schrader's Control lets operators build a worry-free rhythm that puts new speed in your presses in just a short time.

Get details on complete Schrader Two-Hand Press Controls—and other Schrader hand and foot-operated controls. Write for Pneumatic Control Folder A-278 today.

**A. SCHRADER'S SON**

*Division of Scovill Manufacturing Company, Incorporated*

458 Vanderbilt Avenue, Dept. D-40, Brooklyn 38, N. Y.

If you write maker identify as IEN - 11260

## Act now—have a money-saving B.F.Goodrich

**TW TIRE AND WHEEL ANALYSIS made in your plant today!**

● You can save as much as 50% on industrial tire costs with the B. F. Goodrich Tire and Wheel Analysis Plan!

Call in your local B. F. Goodrich representative today. He's trained to study your materials handling set-up. He knows the kind of industrial tires—the tread compounds and tread designs—that will give the best service at lowest cost in your type of work. He'll recommend these tires to you. And this service costs you nothing, puts you under no obligation.

Industrial tire users across the country have benefited from the recommendations of the B. F. Goodrich Tire and Wheel Analysis man. They have saved up to 20% on *maintenance costs alone* by following the suggestions he makes. Why not find out, without obligation, how much the B. F. Goodrich Tire and Wheel Analysis Plan can save *you!*

You can be sure the advice you get from your BFG man will be impartial. He has no axe to grind for any particular type of industrial tire—for B. F. Goodrich makes, and BFG retailers sell, a complete line of industrial tires.

Call your local B. F. Goodrich representative today and ask him to make a free Tire and Wheel Analysis in your plant, or mail the coupon. A special TW Analysis Plan is available for manufacturers of industrial handling equipment.

**Specify B. F. Goodrich tires when ordering new equipment**

The B. F. Goodrich Co.
Department TW-252, Akron 18, Ohio.

Please send me:

☐ *Additional information* on your new Tire and Wheel Analysis Plan

☐ A free copy of your "Industrial Tire Guidebook".

Name _____

Company _____

City _____ Zone ____ State ____

RESEARCH KEEPS B.F.Goodrich FIRST IN RUBBER

If you write maker identify as IEN - 11262

## WRENCH . . Toggle design to grip without marring finished pipe

Source: ROBERT AUSTIN CORPORATION
49-53 Albany St., Boston 11, Mass.

Lever releases grip

**Split bronze** bushing fits inside the head of this new Smooth-Grip wrench. There the two halves are held against rotation by means of studs. When the wrench is closed and adjusted, the bushing halves grip a smooth finished pipe for rotation in one direction. They slide freely on the pipe in the other. Interchangeable bushings are available for pipe from ½ to 1¼ inches. Bushings are available also with hexagon bore to handle nuts and bolts. The wrench retails for about $16.

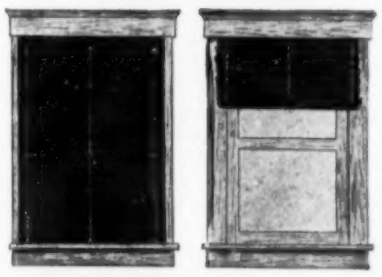
If you write maker identify as IEN - 11263

**Dirt** can be kept out of the grease fittings on your equipment if you purchase and apply the new Zur-Kap neoprene fitting caps. The cap fits Zerk and Alemite fittings. It snaps in and out of position to present clean fittings to the grease gun. Winner Manufacturing Company, Box 945-A, Fort Wayne 1, Ill., is the maker.

If you write maker identify as IEN - 11264

## BUILDINGS . . Black out blind lies flat on window, folds up to open

Source: A. MAMAUX & SON
122 Blvd. of Allies, Pittsburgh 22, Pa.



Fireproof

**Army duck,** 10 oz. in weight, is vat-dyed jet black for this new blind. It is assembled with rigid steel rods in 1½ ft. end-to-end lengths. It is supported from fittings at the top of a window opening and is opened by pulling on cords that ride over brass swivel pulleys. It folds up in a reef pleat arrangement. The rods hold it securely flat against the opening so no light can come through in "down" position.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11265

**VALVES • DART & PIC UNIONS • TRUCKS • CASTERS**

If you write maker identify as IEN - 11266

## ENAMELSTRIP

**STEEL • ALUMINUM • BRASS • PRE-FINISHED COLOR COIL**

assures a **perfect finish before fabricating**

You can easily cut production time and cost with Enamelstrip, the continuous-feed, pre-colored metal coil. Leading manufacturers of metal products are using it with outstanding results in a wide variety of items. Enamelstrip's exclusive, flexible finish withstands the stresses of drawing, bending and forming without cracking or peeling. Many companies have entirely eliminated their finishing departments! Any metal in any finish will be coated and slit to your own specifications.

Write TODAY for detailed color bulletin

**THE COATED COIL CORPORATION**

511 West 30th Street, New York 1 • LOngacre 5-3161

If you write maker identify as IEN - 11267

## TEMPERATURE CONTROL

**Five Ranges of 150, 350, 450, 650 and 1000 deg. F.**
**Thermostatic element operates electric switch.**
**Switch capacity to 500 watts ac. 50 wats dc.**

This Model M Indicating Temperature Control is installed to operate a solenoid or motor valve in a gas, oil or steam line and thus regulate flow in step with heat requirements. It is employed to control the operation of electric heating elements, relays, motors. It automatically maintains temperature (where you set the red-colored pointer on its temperature-indicating scale) in an oven, melting pot, platen, drier, or any heated equipment.

This electric control is available in two and three-wire designs for ac. and dc. control circuits. The thermostatic element is our mercury-actuated flexible unit, powerful, positive, accurate. All elements are changeable. List prices of the complete control range from $62 to $74.

*Send for Bulletin 505-C for detailed information*

**THE PARTLOW CORPORATION**

4 Campion Road New Hartford, N. Y.

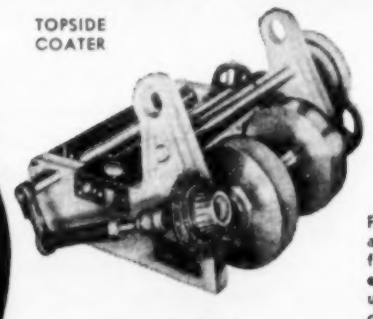
If you write maker identify as IEN - 11268

*60 years of dependable service*

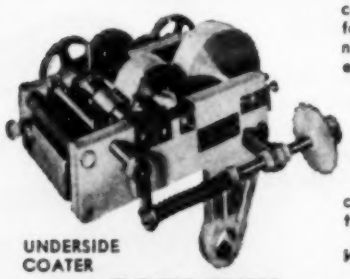
## POTDEVIN

**multi-purpose COATING MACHINES**

TOPSIDE COATER



**for TOP-SIDE or UNDERSIDE COATING**



UNDERSIDE COATER

For use as a self contained and self powered unit or for mounting on other equipment—for topside or underside solid or strip coating. Particularly suited for applying resins, varnish, adhesive, lacquer, etc., to webs or sheets of paper or other materials in widths up to 21 inches. Ductor roller adjustment controls amount of coating applied. Removable reservoir and coating rollers permit thorough quick cleaning.

*Write for full particulars*

**POTDEVIN MACHINE CO.**

213 North Street Teterboro, N. J.

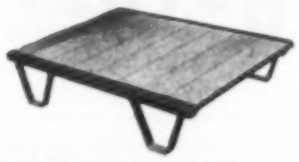
ESTABLISHED IN 1892 POTDEVIN

Designers and manufacturers of equipment for Bag Making, Printing, Coating, Laminating, Gluing and Labeling.

If you write maker identify as IEN - 11269

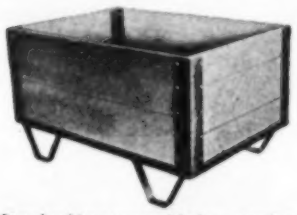
*In production or in storage*

## IRONBOUND EQUIPMENT HANDLES SMALL PARTS MORE EFFICIENTLY



Standard 2-way entry bolted type skid built to handle loads up to 5 tons.

Flexible arrangement of boxes and skids permits tiering and stacking to meet your individual requirements. Provides quick availability, easy handling, or storage for complete units or parts.



Standard box top welded to standard skid. Available too, with removable boxes. Handles many items in production and storage.

Each of the units illustrated has an important use in modern industry. Ironbound skid platforms and box tops are prime sources of increased plant capacity so vitally needed today. Our representative can help you to increase your output and plant space. Catalog GP-7 may help you, too!

**IRONBOUND**
BOX & LUMBER COMPANY
*Materials Handling Division*
50 HOFFMAN PLACE • HILLSIDE, N. J.

MANUFACTURERS OF QUALITY BUILT SKIDS, SEMI-LIVE SKIDS, FLOOR TRUCKS, ROLL TRUCKS, DOLLIES AND PRY BARS

If you write maker identify as IEN - 11270

## FAST *Efficient* PRODUCTION

## ELECTRIC FEEDRAIL®

That's because FEEDRAIL trolley busways over your production, assembly and test lines . . .

- **provide mobile outlets for electrical machines and portable tools anywhere and everywhere they're wanted.**
- **eliminate long, dragging cables that endanger personnel and hamper their work.**
- **keep electrification and tools off floor and benches . . . away from the danger zone.**
- **enable quick tool changes without cutting off power.**

Safe, smooth-flowing, time-and-labor-saving production is the result—*a result you can get in your plant.* FEEDRAIL trolley busways are surprisingly easy to install in operating plants as well as new ones. And they're just as readily modified or moved to fit changing production requirements.

When you install FEEDRAIL Trolley Busways you're sure of maximum safety, adaptability and reliability in electrical distribution.

**THE FACTS ARE CONVINCING**

Get them all in our descriptive bulletin.
Write for a copy to Dept. N-10

SOLD BY MORE THAN 1,000 ELECTRIC DISTRIBUTORS COAST TO COAST

53-5A

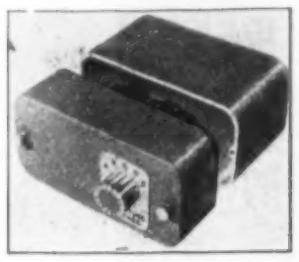
*Never Becomes Obsolete*

**FEEDRAIL CORPORATION**
*Subsidiary of Russell & Stoll Company, Inc.*
125 BARCLAY STREET • NEW YORK 7, N. Y.
SPECIALLY QUALIFIED REPRESENTATIVES IN PRINCIPAL CITIES

If you write maker identify as IEN - 11272

## TESTING . . Photomultiplier for use on company's spectrophotometer

**Source: BECKMAN INSTRUMENTS INC.**
**800 Mission St., South Pasadena 5, Calif.**



**List is $175**

Model B designates a new photomultiplier attachment for sensitive operation of the company's spectrophotometer. The unit contains a multiplier phototube and special circuits. It attaches to the Model B instrument in place of the blue sensitive phototube. It operates from the ac. amplifier in the instrument so no batteries are required. The unit is supplied with a plug and socket assembly and instructions.

**Application** is in the 320 to 600 millimicron range to provide for measurement of low light levels in transmission and reflectance work. It permits the chemist to analyze traces of many elements in routine operation in connection with flame photometry. A voltage control switch can be set for any one of five stages of sensitivity without change in the phototube.

If you write maker identify as IEN - 11273

## SCREENING . . Heater attachment assists in processing moist material

**Source: F. R. HANNON & SONS**
**1605 Waynesburg Road S. E., Canton 7, Ohio**

**Applies on your screens**

**Glass insulation** replaces rubber, Bakelite and fiber in the company's screen heating equipment previously described IEN-8786-52. The new insulation has excellent structural strength. Moisture absorption is negligible. It does not crack or fracture under extreme pressure or shock. It can be fabricated readily. The new heater assemblies are available for use on screening equipment now in service.

**The heater** employs a step-down transformer to provide low voltage current. This brings the screening area up to a desired temperature that will dry out moist materials so those of correct size will pass through the screen freely.

If you write maker identify as IEN - 11274

## WASHROOMS . . Soap dispenser, stainless steel housing and plunger

**Source: BOBRICK MFG. CORP.**
**1212-16 Nostrand Ave., Brooklyn 25, N. Y.**

**Delivers lather**

**Liquid soap** is stored in an inner transparent shatterproof plastic container in a polished stainless steel and chromium plated brass housing in this new No. 45 soap dispenser. The soap issues when a plunger is depressed. Mounting is on a separate concealed wall plate. The filler top locks with a key. Capacity is 18 fluid ounces.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11275

## Every Major Jet Engine Manufacturer* uses "AMERICAN WELDED" Component Parts

Rings, turbine casings, assemblies — or other circular welded components — if your requirements call for either fusion or resistance welding of ferrous or non-ferrous metals, our Product Development Division can help you. American Welding provides designing, engineering, metallurgical and machining facilities. Give our local representative a call — or write direct — we will be glad to study your problem.

*United States

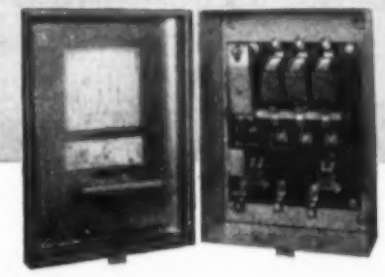
**THE AMERICAN WELDING & MANUFACTURING CO.**
150 DIETZ ROAD • WARREN, OHIO

If you write maker identify as IEN - 11276

## QUICK-QUENCHING

**ALLIS-CHALMERS New Size 4 STARTER**

*Extends Contact Life*



**This size 4 magnetic,** full voltage starter features a 150-amp, 600-volt contactor utilizing a quick-quenching arc centering blowout . . . a new principle of arc interruption which minimizes destructive burning and pitting of contacts. Contactor is clapper-type with single break contacts. Melting alloy-type relays provide overload protection. Starter available in general and special purpose enclosures.

There is an Allis-Chalmers starter for every motor need. Contact your nearby A-C representative or write for selection guide 14B7733, Allis-Chalmers, Milwaukee 1, Wisconsin. A-4047

**ALLIS-CHALMERS**

If you write maker identify as IEN - 11277

Shells, beads, or American dollars — no enterprise is successful unless it shows a profit. Kester quality and performance assure you profitable production results at the lowest possible cost. To put more "wampum" in *your* "wigwam," always insist on Kester Solder!

*HAVE YOU written for your free copy of the Kester Technical Manual, "SOLDER and Soldering Technique"? Won't you do it today?*

**KESTER**

SOLDER COMPANY
4211 Wrightwood Avenue • Chicago 39, Illinois
Newark 5, New Jersey • Brantford, Canada

If you write maker identify as IEN - 11278

## These *Bond* Casters are Your Best Buys for TROUBLE-FREE SERVICE

**36-A Series**—Double Ball Race Swivel Caster

**1-A Series**—Stationary Caster

**41-A Series**—Structural Steel Stationary Caster

**40-AH-VG Series**—V-Grooved Wheel Structural Steel Heavy Duty Swivel Caster

**3-A Series**—Single Ball Race Swivel Caster

**Dual Wheel Swivel Caster**

***Ask your industrial distributor . . .***

***he knows*** that for dependability, economy and trouble-free materials handling you just can't beat Bond Casters. Your distributor has the right Bond Casters for your jobs. Get your copy of Bond Catalog K-38 from him, or write direct.

**BOND FOUNDRY & MACHINE CO.**
Manheim, Pennsylvania

If you write maker identify as IEN - 11279

HOW DO YOU PUT A HEAVY PHOSPHATE COATING ON 90 MM. SHELLS?

HOW CAN WE GET BETTER ELECTROCLEANING AT LOWER COST?

Our 200 Oakite Technical Service Representatives answer questions like these every day. We thrive on questions about tank cleaning, machine cleaning, electrocleaning, pickling, preparation for painting, paint stripping, steam-gun cleaning, burnishing, rust prevention and related subjects.

Send us your questions on metal cleaning. There's no obligation. We'll be glad to advise you the best way we can.

**FREE** Also ask for our 44-page illustrated booklet *"Some good things to know about Metal Cleaning."* Just write to Oakite Products, Inc., 16A Rector St., New York 6, New York.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. and Canada

If you write maker identify as IEN - 11280

**Design your own Precision Gaging Fixtures . . .**

*. . around this Gage Head Cartridge*

*Measures by .0001" — .00001"*

Compact, shock-proof, and moisture-proof, this inexpensive Brown & Sharpe Gage Head Cartridge No. 953 gives you a simple means for designing high precision into your own gaging fixtures. Plugs into No. 950 Electronic Amplifier which gives readings in .0001" to .00001" . . . only one master required for setting.

Cartridge has frictionless action, adjustable measuring pressure, and is ideal for inspection devices, jigs fixtures, and machines. Write for Bulletin. Brown & Sharpe Mfg. Co., Providence 1, R. I., U.S.A.

*BUY THROUGH YOUR LOCAL DISTRIBUTOR*

BS

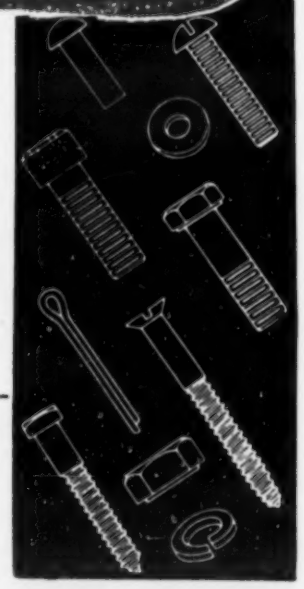
**Brown & Sharpe**

If you write maker identify as IEN - 11281

**STOP CORROSION with HARPER**

*EVERLASTING FASTENINGS BY THE DOZENS OR BY THE MILLIONS*

If you use fastenings of brass, bronze, copper, monel, aluminum or any stainless steel, you can get what you want from Harper. Over 7,000 items stocked—all backed by Harper's advanced metallurgists and skilled engineers. See your Harper Distributor.



HARPER

EVERLASTING FASTENINGS

The H. M. Harper Company
8211 Lehigh Avenue
Morton Grove, Illinois
Please send me Harper Catalog.

*Name*.....

*Address*.....

*City*.....*State*.....

## *For Your Special Information*

ALL MAKERS ARE LISTED IEN S-33

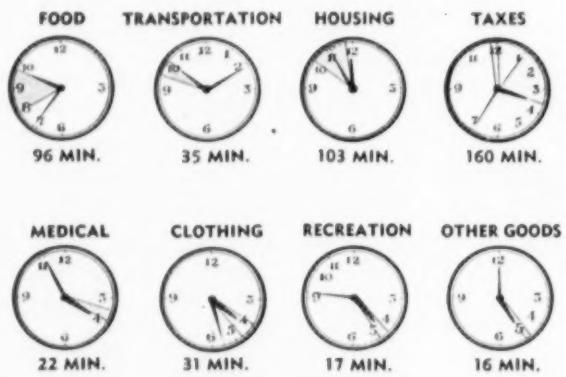
**Everyone knows** General Electric as a very large manufacturer of a great many products for use in every field. Probably only a few realize that this great company is celebrating its 75th birthday this year or that its count of products has grown from Edison's original electric lamp, on which he started work in 1878, to some 200,000 different items under more than a thousand classifications.

**Edison's lamp** burned successfully for 40 hours when, in 1879, he employed a carbonized thread as the filament. He improved the service life as he went along until, in 1905, the company introduced the metalized carbon filament lamp and in 1909 sold more than 10 million of them under the trade name Mazda.

**The year 1905** also marked another "start" destined also to grow in proportion to its usefulness in the purchasing offices over the country where men were required to keep in touch with the many sources for the things they needed in product and production. That start was the original Thomas' Register. It set out to list the manufacturers of all products made in the United States, to tell their size, their location and their products.

**General Electric** had a dozen listings in the first pocket size edition. Today it has well over a thousand. There were 1,228 3½ by 9-in. pages in that first issue. Today there are some 8,700 pages in four books measuring 9 by 14 inches. Its listing pages are open to anyone who manufactures products or services for sale to industry. It is the place where men in industry look to find the sources for the things they need. If you want to know who makes what, including General Electric and every other big and little products manufacturer, just look in Thomas' Register.

**HERE'S WHERE THE MONEY GOES THAT YOU EARN IN AN 8-HOUR DAY**




If you write maker identify as IEN - 11282

If you write maker identify as IEN - 11283

**HANDLING BULK MATERIALS?**

**"TAKE IT UP A FLO-TUBE"®**

CANTON STOKERS

The spiral conveyor of steady, dependable service. Sturdy cast iron trough bolts together in 3 ft. sections, capped with steel plates for easy removal if ever necessary. Built to take the abuse of coal, yet with tolerances just right to handle materials from grain size to lump.

To fill 3 or more hoppers use gate-valves in Flo-Tube horizontally. Below, filling 2 hoppers with "Y" chute.

Hopper level maintained by 'off-on' automatic switches.

Exposed end for pick-up

**CANTON STOKER CORP.**

SPECIALISTS IN AUTOMATIC COAL FIRING, HANDLING AND CONTROL EQUIPMENT

107 Andrew Place, S. W. • Canton, Ohio

If you write maker identify as IEN - 11284

**Keep Work Records Neat**

**PROTECT 'EM FROM GRIME! GUARD 'EM FROM TEARING!**

Just slide work records, valuable data, sales material, etc. into Ful-Vu protector sleeves of crystal clear Mikafilm for permanent protection, neat arrangement and attractive display. Protectors fit standard ring binders. Unique Ful-Vu design guards against tearing or pulling loose at binding edge.

**FREE SAMPLES:** Send for sample Super Pul-Pruf protectors plus 32-page catalog of Ful-Vu albums, binders, shop record holders, etc.

Dept. IEN-103
COOKS', INC.

CAMDEN N. J.

PROTECTS Ful-Vu GLORIFIES
SYSTEMS OF DISPLAY

If you write maker identify as IEN - 11285

Mark your own symbols, numbers, lettering, on your small parts, tools, identification and name plates . . . easily, simply, quickly . . . tracing from a master with the GREEN ENGRAVER.

Widely used in electronic and plastic fields, in machine tool shops and wherever permanent marking is needed. The GREEN ENGRAVER engraves equally well on metals, plastic, wood, hard rubber and glass.

Fact-filled folder on request . . . showing how economies in costs, labor and time are achieved with the GREEN ENGRAVER.

Routs Models
Profiles Engraves

Etching attachment and other special equipment for industrial uses are available.

*Green Instrument Co.* INCORPORATED

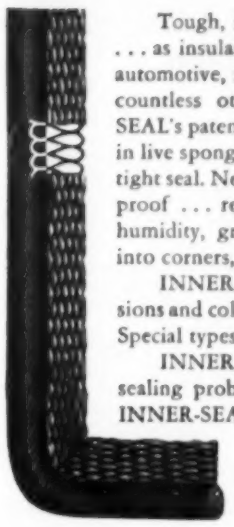
373 PUTNAM AVE., CAMBRIDGE, MASS.
Visit us at National Instrument Exhibit, Booth 262

If you write maker identify as IEN - 11286

# Bridgeport INNER-SEAL

**INDUSTRY'S MULTI-PURPOSE SEALING MATERIAL**

Free folder, with engineering data and specifications, tells how industries use INNER-SEAL applications to eliminate sealing problems.



Tough, flexible INNER-SEAL has many uses . . . as insulation, cushioning, gasketing . . . in the automotive, railway and refrigeration fields, and in countless other fields of manufacture. INNER-SEAL's patented construction—spring steel molded in live sponge rubber—makes an effective, pressure-tight seal. Neoprene coated INNER-SEAL is waterproof . . . resists temperature extremes, sunlight, humidity, grease, oil and abrasion. It fits snugly into corners, around curves—lasts for years.

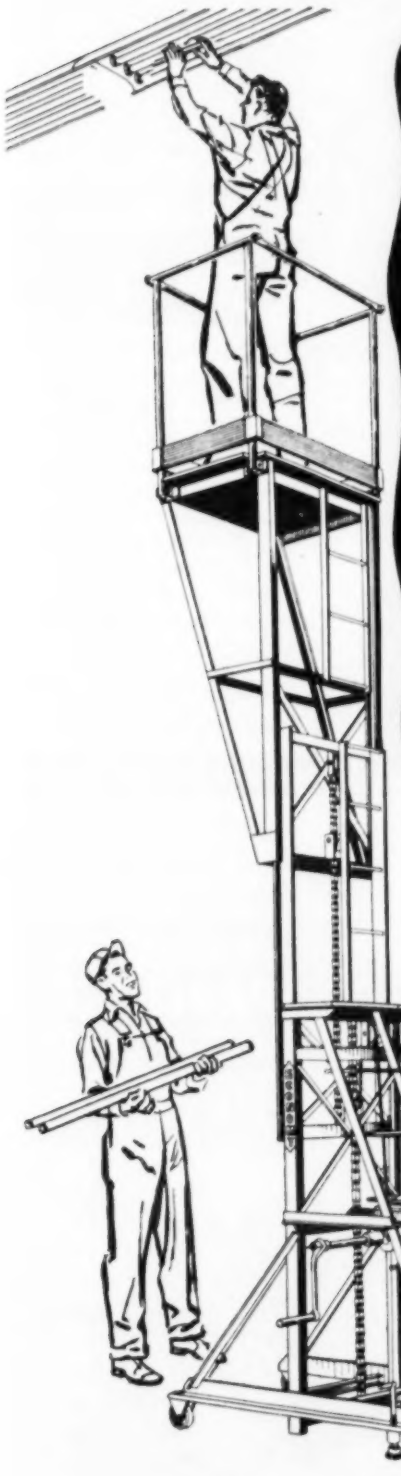
INNER-SEAL is stocked in standard dimensions and colors. Heavy-duty type available in black. Special types or colors made to order.

INNER-SEAL is constantly solving all sorts of sealing problems. If *you* have one — why not try INNER-SEAL?

**FREE SAMPLES**
*and complete information*
WRITE TODAY

**BRIDGEPORT FABRICS, INC., BRIDGEPORT 1, CONN.**

If you write maker identify as IEN - 11287



# Safety for Overhead Jobs

**HI-REACH PLATFORM TELESCOPER**

# Model PUL

**THREE STANDARD MODELS**

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|---|---|---|
| No. 1 | Platform lift 10'9" | $305.00 |
| No. 2 | Platform lift 11'9" | 315.00 |
| No. 3 | Platform lift 15'0" | 340.00 |

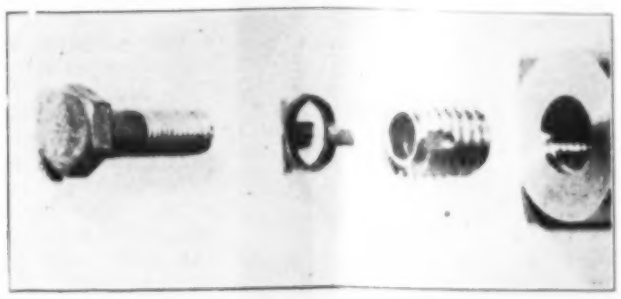
Equipped with 5" diameter base wheels
Rubber-tired wheels $8.00 extra
F.O.B. Chicago
Other models with platform lift up to 95'
*Write for complete specifications.*

**ECONOMY ENGINEERING COMPANY**
**4502 West Lake Street, Chicago 24, Illinois**

If you write maker identify as IEN - 11289

## FASTENING . . Threaded insert and locking ring for parts assembly

**Source: FASTENERS INCORPORATED**
**One West 47th St., Room 1203-A, New York 36, N. Y.**



**Ring fingers lock against rotation**

**To the right** in the illustration is a new metal insert, threaded both inside and out and equipped with keyways through the outer threads for a part of its length. To the left of this insert is a locking ring that rides on a machined shoulder on the insert end so the axial fingers on its two sides fit along the keyways.

**These two parts** comprise a new anchor assembly to apply in a parent body so the insert presents its inner threads as an anchoring point for parts assembly. A stud can be employed, in place of the insert, with the stud shank diameter somewhat under the root diameter of the anchoring threads so the locking ring can be put in place.

**The insert,** or stud, is threaded into the parent body. Then the locking ring is pressed down so its fingers cut through the parent body threads to bring the ring into seated position. In this position the fingers prevent the insert or stud from turning and the anchor is complete. The two parts are available in specified metals and sizes for quantity production.

If you write maker identify as IEN - 11290

## TESTING . . Heat indicating liquid, sticks and pellets for 525 deg. F.

**Source: TEMPIL CORPORATION**
**11 W. 25th St., 5th Floor, New York 11, N. Y.**

**Accurate to a degree**

**The company** announces additions to its three types of heat indicating materials of a new temperature of 525 deg. F. The material includes Tempilaq, which is applied with a brush and allowed to dry. It liquefies at the stated temperature. The stick is employed as a marking pencil to put a white chalk-like line on a work surface. When the work is heated this line melts at 525 deg. F. The third material is in the form of a pellet which indicates temperature by its melting point. All three materials are now available in 12 or 13-deg. intervals from 113 to 400 deg. F., in 50-deg. intervals from 400 to 2,000 deg. F., plus the new 525 deg. F. rating.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

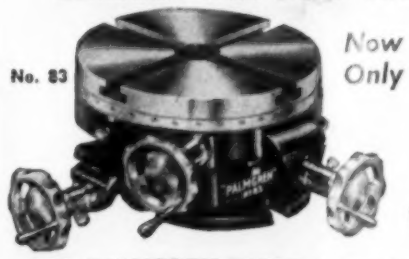
If you write maker identify as IEN - 11291

# PALMGREN

**ROTARY, INDEX, MILLING TABLE**

**The Only Table Having Rotary Feed Combined with DUAL CROSS FEEDS!**

No. 83



Now Only **$54.50**

**Turns Your DRILL PRESS Into A VERTICAL MILLER**

This PALMGREN TABLE is sensational in price, construction and performance. Just what shops need for accurate, precision work. You can mill straight or curved, slot, drill, also rout, rabbet, mortise and sand on wood. Do hundreds of jobs as milling slots, grooves, keyways, squares, hexagons, curves, flats, dovetails, indexing and laying out work.

Designed for use on Drill Press or Milling Machine. It handles all types of metal and woodworking operations and makes your drill press a vertical milling machine. Precision built. It permits close tolerances. Rotary Feed is calibrated in degrees. Cross Feeds in thousandths. Cross slides and feed are 2⅛" each side of center—4½" overall. Has Acme thread cross feed screws, adjustable gibs on cross slides—40 to 1 worm and gear ratio in rotary feed. 4 Bolt slots—2 lock screws.

No. 83 Table Dia. 8", T-Slots 5/[illegible] Base Keyway 5/8", Base Dia. 6¼", Ht. 5", Wt. 37 lbs. Pri[illegible] Only $54.50.

*Order Today! Write for new Catalog No. 201*

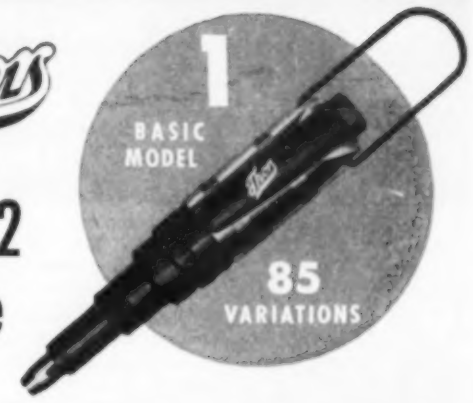
**CHICAGO TOOL and ENGINEERING CO.**
*Mfrs. of PALMGREN PRODUCTS Since 1918*
8406 South Chicago Ave. Chicago 17, Ill.

If you write maker identify as IEN - 11292

**SPECTACULAR PRODUCTION, REAL AIR TOOL ECONOMY**

# Thor

# No. 2 Line




**DRILLS • SCREWDRIVERS**
**NUTSETTERS • GRINDERS**

ONE unified "family" of *85 light weight air tools* with interchangeable handles, gear cases, chucks, spindles, screwdriver and nut setter attachments. Simplifies all your air tool problems in this class. For catalog, write Thor Power Tool Company, Aurora, Ill.

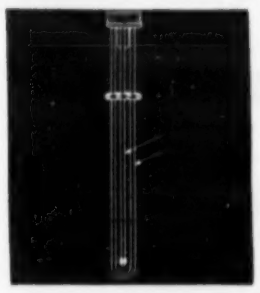
**TOOL MAKERS FOR SIXTY YEARS**

If you write maker identify as IEN - 11293

# Tube Talk

**THE "HOW-TO" COLUMN**

**PROBLEM:** Tubing for automatic electric immersion heaters, manufactured by The Still-Man Company, New York, N.Y., failed in forming operations. Finish was also poor, requiring additional work before shipment. These heaters are used in tanks holding chemicals, photographic solutions, drugs, water, electroplating solutions, etc.



**SOLUTION:** After trying a variety of alloys, The Still-Man Company selected corrosion-resisting Weldrawn 316 Stainless Steel tubing ⅜" O.D. x .032 wall, furnished by Superior Tube Company.

**RESULT:** Since using Superior Weldrawn Stainless Tubing, Still-Man has had negligible rejects due to bending and forming. Finish required no additional treatment. Production now standardized.

**Suggestion**—Write for information and literature today.

**SUPERIOR TUBE COMPANY**
2016 Germantown Ave., Norristown, Pa.

If you write maker identify as IEN - 11294

**MAKES TOUGH TASKS EASY**

'Tugit' does exactly that. It is a compact, portable tool — ideal for close-quarter lifting and pulling at any angle. Light but ruggedly built, it has all the easy, fast action of a spur-geared hoist. Every feature has been provided to assure complete safety.

To maintain plant equipment, to lay pipe or slide freight doors, to stretch cable or wire fencing, to pull posts or uproot stumps—whatever the job, 'Tugit' saves time and energy. Accurate spotting is easy. One-ton loads can be moved as little as 1/32" at a time, with a lever pull of only 40 lbs.

'Tugit' is a tool-box-size hoist made in 1 and 2-ton capacities. It's so handy, new jobs turn up for it every day. Learn all about versatile 'Tugit' from your "Shaw-Box" Distributor or write for Bulletin 388.

**'TUGIT'® HOISTS**

**MANNING, MAXWELL & MOORE, INC.**
**MUSKEGON, MICHIGAN**

Builders of "Shaw-Box" and 'Load Lifter' Cranes. 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of 'Ashcroft' Gauges, 'Hancock' Valves, 'Consolidated' Safety and Relief Valves, and 'American' Industrial Instruments.

If you write maker identify as IEN - 11295

Cut tank maintenance costs!

## SPRAY HEAVY-WEIGHT PROTECTIVE MATERIALS with VERSATAL PUMPS!

- Air Operated Versatal Pumps deliver material direct from original containers!
- Pump through hoses up to 300' long — drums stay on the ground!
- Handle heaviest materials even in cold weather!
- Speed, Simplify, Cut Cost of material application!

Tank maintenance, always a tough problem, is simplified and speeded up through the use of Spray Equipment and Versatal Pumps! Even heavy coal tar emulsions go on fast and evenly, effecting savings in time and material. This is just one problem out of thousands solved with Versatal equipment in industry.

**FREE!** A book of ideas on how Alemite Versatal Equipment can help solve your maintenance problems. Write to Alemite, Dept. B-103, 1830 Diversey Parkway, Chicago 14, Ill.

SW ALEMITE Versatal

If you write maker identify as IEN - 11296

## Available For Your Use...

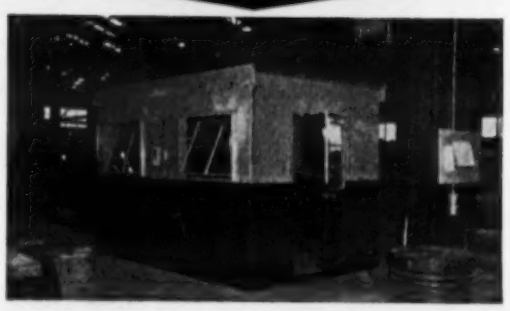
TENSILEND 70 E7016
TENSILEND 100 E10016
TENSILEND 120 E12015
MANGANEND 1M E9015
MANGANEND 2M E10015
NICKEND 2 E8015
CHROMEND 1M E8015
CHROMEND 2M E9015

**Practical, Fact-Filled Data Sheets** give complete information on every grade of Arcos Low Hydrogen electrodes listed...*applications, weld metal analysis, mechanical properties, welding characteristics.* Write today for the Data Sheets that will guide you in the selection of the "right" electrode to produce sound high quality weld metal.

ARCOS CORPORATION
1500 South 50th St., Philadelphia 43, Pa.

If you write maker identify as IEN - 11297

## BUILD BETTER STRUCTURES inside your plant



Armco Buildings of STEELOX construction can be used *inside* your plant as well as outside. They have many advantages for shipping rooms, foreman offices, tool storage and similar enclosures.

Erection is quickly done by a small crew. STEELOX panels provide both structural support and finished surface. Tight STEELOX construction excludes dust, reduces factory clamor and can be insulated against noise.

Armco Structures require minimum floor space. Should conditions change they can be moved intact or dismantled and rearranged. There is nothing to crack, warp or rot. Damaged parts can be easily replaced.

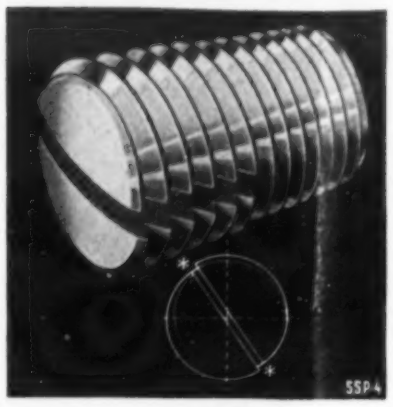
**WRITE FOR THE COMPLETE MONEY-SAVING STORY**

**ARMCO DRAINAGE & METAL PRODUCTS, INC.**
2223 Curtis Street • Middletown, Ohio

If you write maker identify as IEN - 11298

## FASTENING . . Locking set screw grips hole threads to prevent loosening

Source: SET SCREW & MFG. CO.
5 Main St., Bartlett, Ill.



Note the off-set

**The company** announces acquisition from Shakeproof Division of Illinois Tool Works of that company's line of off-set self-locking set screws. The screw will now be known as the Setko Off-Set Self-Locking Set Screw. It is now in production in sizes ranging from No. 4 to 5/8 inch.

**Locking action** results from an off-setting operation, when the screw is manufactured, so one side of the slotted end is out of line with the other as shown in the illustration. When the screw is turned into a threaded hole the two halves are brought into alignment with each other but the spring action, remaining in the screw, locks it in the hole against movement in either direction without actual application of force.

If you write maker identify as IEN - 11299

## TIMING . . Day-night interval unit makes 16 operations in 24 hour period

Source: PARAGON ELECTRIC CO.
1299 Adams St., Two Rivers, Wis.

Can be locked

**Series 3000** is a new design to replace the previously developed Series-300 time switch. A clutch in the dial drive permits manual check of the "on-off" intervals. Adjustable trippers can be set and reset after loosening them on the dial. Trippers can be taken off or added for a maximum of 16 operations in the 24-hr. day-night period.

**A new terminal block** assists in wiring. Silver contacts rate 30 amp. on 110-volt ac. The unit is assembled in a window equipped steel housing finished in gray enamel. The mechanism is Underwriters' Laboratories approved.

If you write maker identify as IEN - 11300

**Chemicals** for nickel plating, that work without electric current, have been developed by Metal Processing Co., 39-43 Canfield Road, Cedar Grove, N. J. The company is prepared to process samples of work sent to it for evaluation of the process. Intricate and irregular shapes can be plated uniformly, inside or outside. The as-plated nickel deposit equals an electroplated deposit in hardness and corrosion resistance. Electroless is the trade name..

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11301

## TINNERMAN TUBULAR-TYPE Speed Clips®

. . . save up to 50% on Assembly Costs in "blind" attachments

Tubular type SPEED CLIPS provide fast, efficient, vibration-proof attachments. They are used with unthreaded studs, or rivets; are available in a wide range of sizes. Snapped into place by hand, they virtually nail panels together. An ideal fastener where only one side of the assembly is accessible; perfect for attaching name plates, grilles, decorative trim. See your local Tinnerman representative for full information on Tinnerman SPEED NUT Brand Fasteners, or write direct to:

Insert SPEED CLIP into hole; Spring Steel prongs compress, then spring out after fully inserted, holding Clip in position.

Line up second part of assembly and start rivet into SPEED CLIP.

Seated rivet is engaged as turned-in end of SPEED CLIP "bites" rivet to lock it securely.

**TINNERMAN PRODUCTS, INC.**
Dept. 12, Box 6688, Cleveland 1, Ohio

If you write maker identify as IEN - 11302

## HOW YOU CAN SAVE with ISOMODE* PAD vibration control

A standard, economical package of ten ISOMODE* PADS provides vibration control for as much as 80 tons of machinery—enough to demonstrate that you can save four ways:

1. Save bolting or lagging — machines stay put on any type floor.
2. Save workers' energy — noise levels go down.
3. Save through increased efficiency — vibration won't interfere with nearby equipment or offices.
4. Save maintenance — there's less strain on machines, less building damage.

And all at small cost!. Simply cut to size — no waste. Write for price data and application bulletin No. 415.

*Trade Mark

**THE MB MANUFACTURING COMPANY, INC.**
1064 State Street, New Haven 11, Conn.

If you write maker identify as IEN - 11303

Let Doctor "E" Solve YOUR Lubrication Problems Too . . .

with **Electrofilm** DRY FILM LUBRICATION

**RECOMMENDED** . . . where ordinary lubrication is not adequate due to extremely high or low temperature, solvents, inaccessibility, dirt, pressure, etc.

FACILITIES IN PRINCIPAL CITIES

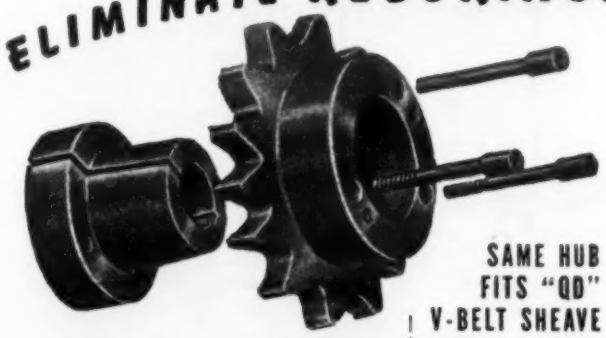
SAVE MONEY... Write for Doctor E's FREE Bulletin of case histories and technical data

Electrofilm, Inc. Dept. B, P. O. Box 106, No. Hollywood, Calif.

If you write maker identify as IEN - 11304

FORT WORTH QD Roller Chain SPROCKETS WITH TAPERED SPLIT HUB

## ELIMINATE REBORING!



**"OFF THE SHELF" SERVICE AVAILABLE FROM INDUSTRIAL DISTRIBUTORS**

Reboring of stock bore sprockets to fit various shafts is eliminated due to the various bores available in the QD hub. Installation and removal from the shaft is made easy by the tapered fit of the hub and sprocket. Hub assembly grips the shaft equivalent to a "press fit."

**Catalog explaining additional advantages and construction details will be furnished on request.**

**SAME HUB FITS "QD" V-BELT SHEAVE**

Speed changes are simplified and "spare" sprockets can be carried more easily.

If your favorite distributor doesn't stock this new item, tell him about it. He'll reward you with better service.

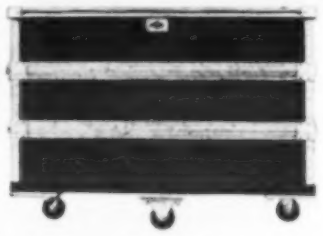
OTHER FORT WORTH PRODUCTS
V-BELT DRIVES
SCREW CONVEYORS and ACCESSORIES
SCREW ELEVATORS
INDUSTRIAL FANS

**FORT WORTH STEEL AND MACHINERY CO**
DEPT. 210, 3600 McCART, FORT WORTH, TEXAS

*If you write maker identify as* IEN - 11305

DIAMOND FIBRE

## SPARTAN TRUCKS



**. . . LAST and LAST and LAST!**

Buying the best in fibre trucks is easy once you get C-D-F's Receptacles Catalog R-52. This big book shows how Spartan Trucks are built for long life, complete protection of materials handled, smooth running swiveling.

There's an important difference in the way C-D-F builds a Spartan Truck . . . to your exact dimensions . . . with your choice of quality casters . . . from selected top grades of genuine C-D-F Diamond Vulcanized Fibre. Top rims are rust-resistant, with no overhang to snag materials or elbows. Diamond Fibre sides are smooth, tough, oil and grease resistant. Hardwood bottoms (solid or slatted) with a welded iron kickband. Rounded metal corners with eight corner rivets for super strength. Curved center bands.

A C-D-F Sales Engineer wants to put one Spartan Truck in your plant (our four plastics factories use hundreds). You compare it. Spartan Trucks have strong construction, better workmanship, top quality materials throughout, practical design . . . and longer life. They last and last and last!

THE NAME TO REMEMBER . . . DIAMOND FIBRE MATERIALS HANDLING EQUIPMENT

*Continental-Diamond Fibre Company*

NEWARK 21, DELAWARE

*If you write maker identify as* IEN - 11306

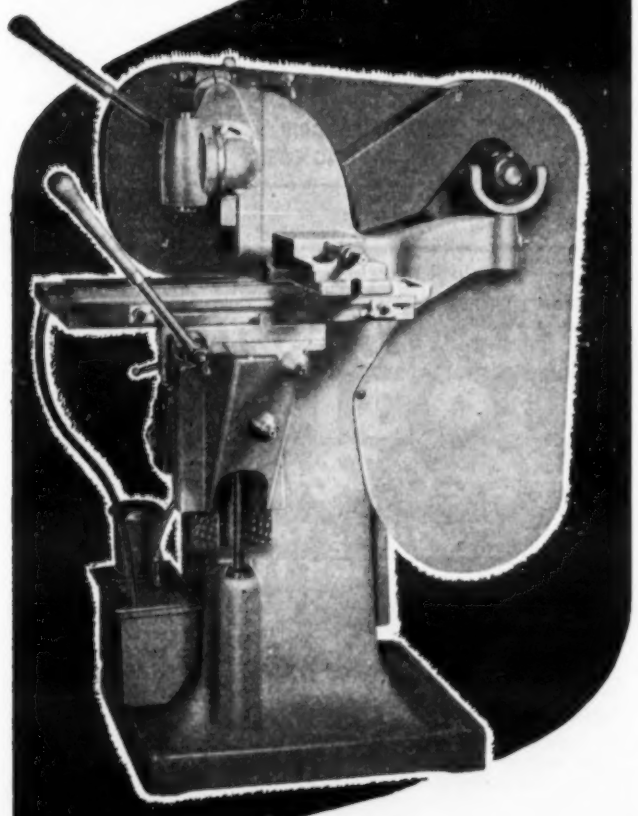
# Cut Costs

on Tool Room, Development and Mass Production Milling with

# U. S. No. 1

## HORIZONTAL MILLING MACHINES

Time-proved, shop-proved, profit-proved "U. S. No. 1" heavy duty, hand-feed milling machines are outstandingly America's No. 1 Machine Tool value. Easily adapted to production with automatic devices.



**SEND FOR DATA AND SUGGESTIONS**

Suggestions as to how a U. S. No. 1 Milling Machine can cut costs on your particular production needs, as well as complete data on the basic machine and attachments, gladly furnished on request.

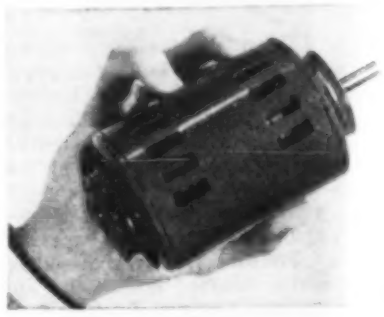
**THE U. S.-BURKE MACHINE TOOL DIV.**

Brotherton Road 5
Cincinnati 27, Ohio

*If you write maker identify as* IEN - 11308

## MOTOR . . Miniature induction, for appliances and business machines

**Source: GENERAL ELECTRIC CO.**
**Dept. 6X-201, Schenectady 5, N. Y.**



**No radio interference**

Type-KC 49 frame motor operates free from radio interference and has been designed particularly to drive business machines. It is available in various ratings, maximum at 1/20 hp., for operation at 2,850/3,450 rpm. on 50/60-cycle 110-volt ac. Operation is without noise and at a low temperature rise for continuous duty. Bearing construction is babbitt sleeve design with oil reservoirs.

*If you write maker identify as* IEN - 11309

## FLOORS . . Asphalt base material for resurfacing use, contains resin

**Source: FLASH-STONE COMPANY**
**3721-25 Pulaski Ave., Philadelphia 40, Pa.**

**Ask for booklet**

**Plastic Pellets**

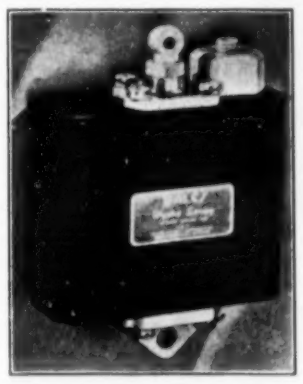
Liggite trade names a new floor surfacing material in which wood resin is employed with limestone rock asphalt. The material is laid in a section ⅜ in. in thickness and is finish packed by rolling or tamping to about ¼ inch. The edges can be feathered. The floor can be put into active service after setting for 24 hours.

**The finished surface** is characterized by free rolling action of trucks riding over it. The material will deteriorate under long exposure to large quantities of oil or grease but is not affected under usual traffic conditions.

*If you write maker identify as* IEN - 11310

## SPRING . . Hydraulic design compressible fluid, acts in tension

**Source: WALES STRIPPIT CORPORATION**
**361 Payne Ave., North Tonawanda, N. Y.**



**Compriol fluid**

**Tension design** has been added to the Hydra Spring line to supplement the compression stripper spring previously described IEN-482-53. Pull increases the load in the new design. A snubber controls the return movement. The spring assembly is available for loads to 7,000 lb. and stroke to 2⅞ inches. Dimensions for the 7,000-lb. unit are 5 by 2 by 6¼ inches

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11311

# This glass can take impact!

Dropped 10 feet, a ½-lb. steel ball bounces right off ¼"-thick L·O·F *Tuf-flex** Tempered Plate Glass. And *Tuf-flex* can carry more load, resist greater thermal shock than untempered glass. Use it where you couldn't use glass before. And see how this *tough* glass can *replace* costlier materials in your products. Write for your free *Tuf-flex* booklet (T-F 8). Order from your nearest L·O·F Distributor.

**Libbey·Owens·Ford Glass Co.,**
**92103 Nicholas Bldg.**
**Toledo 3, Ohio**

L·O·F GLASS · PLASKON · FIBER GLASS

**LIBBEY • OWENS • FORD GLASS COMPANY**

*If you write maker identify as* IEN - 11312

# Cut drafting time 40% with a BRUNING DRAFTER

Want to speed drafting in your office by as much as 40% – as proved by actual test? Here's how Bruning Drafters make such time savings possible:

**COMBINES FIVE IN ONE** . . . T-square, straightedge, triangle, protractor and scales are combined in a single precision machine.

**EASY "FLOATING ACTION"** . . . patented Equipoise mechanism counteracts gravity on inclined boards . . . mounted on friction-free needle bearings.

**AUTOMATIC SETTINGS** . . . at touch of button, Touch Control automatically locks Drafter at any of 24 commonly used 15-degree-increment angles. In-between angles are readily set.

**FOR YOUR FILE** . . . phone or write Bruning – there's an office near you – for free booklet on time-saving Bruning Drafting Machines. Charles Bruning Co., Dept. R103, 4700 Montrose Ave., Chicago 41, Ill.

A-3-4

**BRUNING**

Everything for the Engineer and Draftsman

*If you write maker identify as* IEN - 11313

# KEEP AIR ACCURATE

# AND CLEAN

**with MASONEILAN AIR REDUCING VALVE AND FILTER**

This Masoneilan pair provides all that's needed to keep operating air accurate and clean. Built for large capacity, minimum pressure loss and negligible maintenance, their extra-sturdy construction assures extra-years of dependable service.

For initial pressures up to 250 lbs. Reduced pressure 5 – 60 lb. – 60 – 100 lbs. Sizes ¼" to ½". Pressure gauge included. Sold separately or in combination.

*Call your local Mason-Neilan Industrial Distributor for fast, dependable service.*

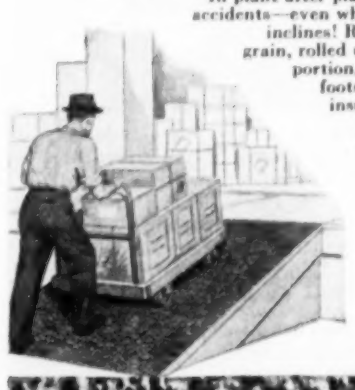
**MASON-NEILAN REGULATOR CO.**
1188 ADAMS ST., BOSTON 24, MASS., U. S. A.

*If you write maker identify as* IEN - 11314

# THIS NON-SLIP FLOOR PLATE PAYS FOR ITSELF IN LOWER INSURANCE RATES!

DOWN go accident rates *and* insurance premiums when you install A.W. ALGRIP Abrasive Rolled Steel Floor Plate. In plant after plant, ALGRIP has ended slipping accidents—even when wet or oily—even on steep inclines! Rough, tough "grinding-wheel" grain, rolled uniformly into ALGRIP's upper portion, puts non-skid safety in every footstep. And resultant savings on insurance premiums pay for your ALGRIP installation.

Learn the full story of *savings from safety* today. Send for the facts about tough, fire-and-breakage-resistant, non-slip ALGRIP Safety Floor Plate. The handy coupon brings you our new Booklet on accident prevention.



**A.W. ALGRIP** *Abrasive Rolled Steel Floor Plate*

**ALAN WOOD STEEL COMPANY**
CONSHOHOCKEN, PA.

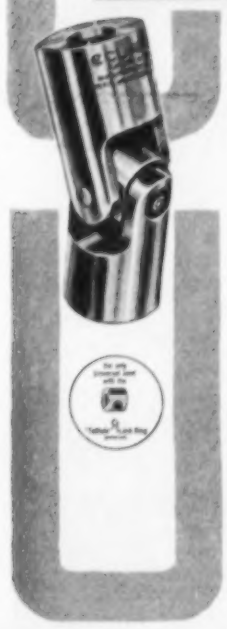
I want to know more about savings from safety. Send me your ALGRIP Booklet AL-5.

*Name* _____
*Company* _____
*Address* _____
*City* _____ *Zone* _____ *State* _____

*If you write maker identify as* **IEN - 11315**

# Look for this mark it stands for

## CURTIS UNIVERSAL JOINTS



Since 1919 Curtis has concentrated on the manufacture of only one line. As a result, Curtis research, production and quality control techniques have produced the widely accepted Curtis standards — and the world's best universal joint.

**ONLY CURTIS OFFERS ALL THESE BENEFITS**

**Availability** — 14 sizes in stock; ⅜" to 4" O.D., bored or unbored hubs.

**Quality Standards** — Curtis Joints set the standards for the industry.

**Simplicity** — fewer parts, simpler construction.

**Constant Tests** — catalog figures substantiated by constant tests in the factory.

**PLUS** — facilities and engineering skill to handle special specification jobs available.

***Not sold through distributors; write direct for free engineering data and price list.***

**CURTIS UNIVERSAL JOINT CO., INC.**
7 Birnie Avenue Springfield, Mass.

*As near to you as your telephone*

Trade Mark **A MANUFACTURER OF UNIVERSAL JOINTS SINCE 1919**

*If you write maker identify as* **IEN - 11316**

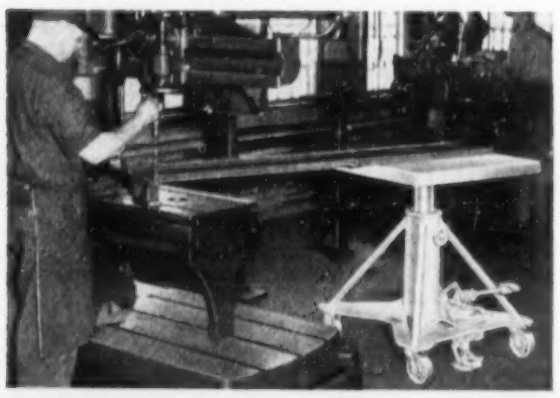
# He "Positions" his work

*. . . you can too, with*

**RAYMOND**

## PORTABLE ELEVATING TABLE

Take a tip from your barber and elevate your work to the most convenient working level! Get a RAYMOND Portable Elevating Table . . . you'll use it for die handling, sheet feeding, work positioning, loading and unloading.



The RAYMOND Elevating Table employs hydraulic power to do all your lifting and lowering. Sturdy 30" square top can be rotated when desired—convenient foot pump frees operator's hands. Smooth-rolling casters make table highly portable. Floor lock holds it securely in place. Standard Model elevates from 28" to 44"—Telescopic Model from 28" to 50". Both have 2,000 lb. capacity.

**GET THIS BULLETIN** Mail coupon today . . . and we'll send you Bulletin 232, describing RAYMOND Portable Elevating Tables in detail!

***The RAYMOND CORPORATION***
3509 Madison Street, Greene, N.Y.

Please send me Bulletin 232 on your Portable Elevating Table.

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ STATE _____

*If you write maker identify as* **IEN - 11318**

## GAGE . . Micrometer height unit reads from 0 to 2 in. by thousandths

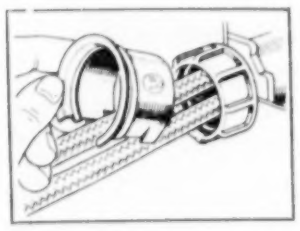
**Source: ELECTROLIZING SALES & TOOLS INC.**
**1404-8 E. 15th St., Los Angeles 21, Calif.**

**Removable scriber**

**Triangular scriber** is shown clamped to the head of this new Stubby height gage. Graduations read by hundredths on the barrel and by thousandths on the micrometer dial at the top of the barrel, starting with a zero position where the scriber lies flush with the base.

**The dial** and barrel are black oxide finished with white numerals. The screw is a double lead ⅜-20 precision ground spring loaded unit riding on a ball bearing to eliminate end play. Layouts, calling for height capacity greater than the gage can supply alone, are made by employing precision blocks beneath the gage base.

*If you write maker identify as* **IEN - 11319**

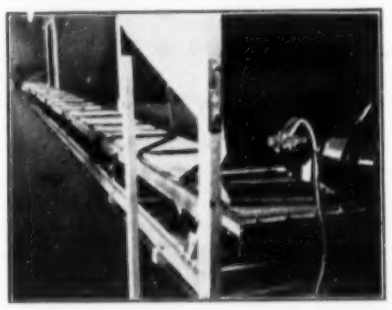


**You slip it** by hand inside a standard conduit bushing, this new split fibre sleeve, and your wiring will conform to the 1953 National Electrical Code. It protects wire and cable from abrasion damage after they are installed. It also protects the conduit end. It is known as the Insuliner. Maker is Thomas & Betts Co., 60-A Butler St., Elizabeth, N. J.

*If you write maker identify as* **IEN - 11320**

## CONVEYING . . Vibrating trough, enclosed design for specified use

**Source: GIFFORD-WOOD COMPANY**
**3 Hudson Ave., Hudson, N. Y.**



**Design follows test**

**Oscilveyor** is new design in the company's lines of conveying equipment which it is prepared to supply after investigating a proposed use and securing essential data. The illustration shows a 64-ft. length with the closed conveyor trough mounted on springs. **It is vibrated by an** elastic motor and linkage connection to handle a granular plastic material. The oscillating movement is a continuing series of forward and up motions followed by downward and back movements to throw the material a short distance forward on each cycle.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* **IEN - 11321**

*Learn about Amazing New Office Space Stretcher*

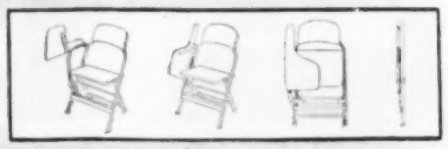
## DOUBLE Seating and Table Space at a Moment's Notice

The new Clarin Tablet Arm Chair that Folds combines table and chair in one. You'll be amazed at how many people you can seat comfortably in a small office—and give each of them table space as well. Thus, you can hold those important group meetings in almost any office—and arrange for it in a few moments.

**WRITE TODAY!**

Our FREE illustrated Folder will give you full details and description of this wonderful, space-saving chair. Quality built—gives years of service—folds to flat 3-inch depth for fast, safe stacking in minimum space. An engineering gem—others are trying vainly to imitate it. Foam rubber cushioning if desired. Write for *free* folder today!

**FOLDS FLAT IN 3 EASY STEPS**



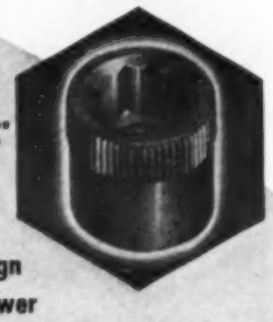
Clarin Mfg. Co.,
Dept. 30,
4640 Harrison St.,
Chicago 44, Ill.

*There is a Clarin Steel Folding Chair for your every need. New FREE Catalog of complete line on request.*

**Clarin**

ENGINEERED QUALITY MAKES THE BIG DIFFERENCE IN FOLDING CHAIRS

*If you write maker identify as* **IEN - 11322**

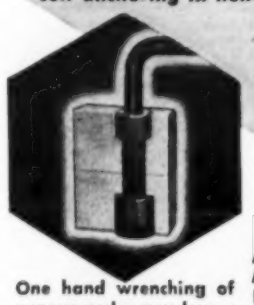


"Tapped holes by the boxful" for use with Cap Screws

- **Eliminate re-threading**
- **For more compact design**
- **For greater holding power**
- **For faster, easier assembly**

# ALLENUTS

***The Allenut is the counterpart of Allen Cap Screws in precision threading and dimensional accuracy. One end is tapped to a class 3 fit. The other takes a standard hex key. Permits flush surfaces, and is self anchoring in non-hardened metals.***



*Standard in nut sizes from ¼2 to 1", class three fit.*

***SOLD ONLY THROUGH LEADING INDUSTRIAL DISTRIBUTORS***

**One hand wrenching of screw only produces weld-like set-ups.**

**ALLEN** MANUFACTURING COMPANY
Hartford 2, Connecticut, U. S. A.

*If you write maker identify as* **IEN - 11323**

# SOLVE ALL YOUR SKIDDING & SLIPPING PROBLEMS

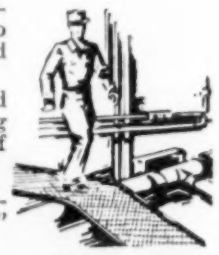
with **Bustin** FIRM-GRIP

## SAFETY GRATING

Bustin FIRM-GRIP* grating guarantees safe, comfortable walking under the most adverse conditions where grease, oil or water can cause accidents from slipping.

FIRM-GRIP is acclaimed by Safety Engineers of major industrial concerns for its exceptional traction quality and other safety features due to the unique assembly and engineered spacing of the contact points.

Made in various designs and sizes and adaptable for installation on skidding problem spots where other makes of gratings cannot be considered.



"Bustin — Designers and Manufacturers of Metal Products Since 1928"

**Bustin** FIRM-GRIP GRATING CORP.
Dover, New Jersey

*Pat. Pending

*Send for Complete Literature*

*If you write maker identify as* **IEN - 11324**

# The All New MOBILIFT 4000 Pounder

**Has *Everything* You Want in a "Sit-Down" FORK LIFT TRUCK**

**MODEL D-424**
**4,000 lbs. capacity**
at 24" Load Center
83" hydraulic mast
lift height 108"

**Check these trend-setting features . . .**

- **CHRYSLER 65-bhp 6 cyl. GAS ENGINE.**
- **CHRYSLER GYROL FLUID COUPLING.**
- **MOBILIFT CONSTANT-MESH TRANSMISSION** with a Push-Pull Lev-R-Matic Control for forward and reverse — No Clutch Pedal — No Gears to Shift — 2 speeds forward, 2 reverse.
- **MOBILIFT FULL-FLOATING DRIVE AXLE.**
- **BALL-BEARING WORM & NUT TYPE STEERING.**
- **HYDRAULIC BRAKES.**
- **EASY TO GET ON AND OFF—NO OBSTRUCTIONS.**
- **FREE ACCESS FROM LEFT OR RIGHT SIDE.**
- **ONE-PIECE HOOD RAISES FOR EASY SERVICE ACCESSIBILITY.**

***Write for complete details***

## MOBILIFT CORPORATION

835 S. E. MAIN STREET, PORTLAND 14, OREGON
2317 W. 18TH, CHICAGO • 730 PATTERSON, E. RUTHERFORD, N. J.
2724 TAYLOR STREET, DALLAS • 2730 SAN PABLO AVE., BERKELEY
1113 SPRING STREET, N.W., ATLANTA

*If you write maker identify as* **IEN - 11325**

The type Tapping Screw you require will vary with: 1. kind of material; 2. thickness of material; 3. the method used for making the hole.*

Lamson Tapping Screws are precision made for maximum holding even in thin material, fully hardened to permit the thread crests to form clean threads without stripping hole. Available in a wide range of head and point combinations. A "special" Tapping Screw to many . . . is a "stock" item at Lamson

**This information is available in tabular form for easy reference. Write for as many copies as you need.*

**The LAMSON & SESSIONS CO.**
1971 West 85th St. • Cleveland 2, Ohio
CLEVELAND AND KENT, OHIO • BIRMINGHAM • CHICAGO

*If you write maker identify as* **IEN - 11326**

# ALEMITE OIL-MIST

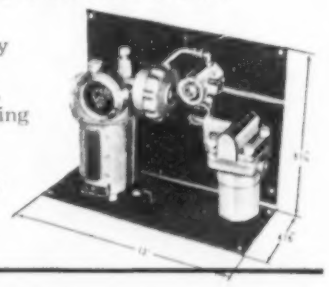
*Saved $2400 first year*

...extended bearing life from 20 weeks to one year and four months

**Eastern Textile Mill Breaks Bottleneck, Cuts Downtime, Ups Production!**

Bearing temperatures were running 200° on an important blower. Production losses totaled $1000 with each frequent bearing failure. After careful study of the problem, management installed an Alemite Oil-Mist unit costing little more than $100. Result: No bearing failures; downtime eliminated! $2400 *saved* to date!

**Alemite Oil-Mist** is a fully automatic system which atomizes oil into mist . . . distributes it through tubing to bearings . . . applies a constant uniform oil film to groups of bearings designed either for oil or grease lubrication.



**delivers oil to bearings 3 ways**

**1. Oil-Mist as Such.** For any type of anti-friction bearing—ball, roller or needle.

**2. Oil in Spray Form.** For open and enclosed gears and chains. Nozzle partially condenses mist so that it can be directed onto a concentrated area.

**3. Oil-Mist Condensed.** For plain bearings, slides, ways, vees, cams and rollers. In these applications, condensing fittings convert oil mist to liquid oil.

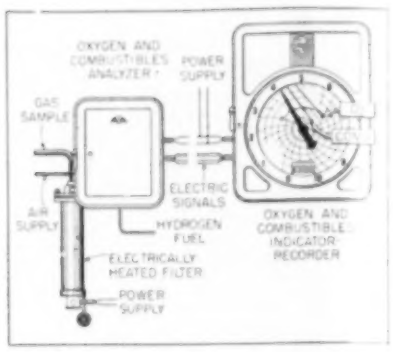
***Get the facts NOW!***

Let us send you the complete story on Oil-Mist. Specifications, models, typical applications, actual case histories. Get yours now. Write Alemite Division of Stewart-Warner, Dept. K-103, 1850 Diversey Parkway, Chicago 14, Illinois.

*If you write maker identify as* **IEN - 11328**

## CONTROL . . Electronic equipment to maintain combustion efficiency

**Source: BAILEY METER CO.**
**1022 Ivanhoe Road, Cleveland 10, Ohio**




**Bulletin E65-1**

**Continuous** and independent measurements are made by this new combustion control equipment of the per cent of oxygen and the per cent of combustibles content in combustion gases. The equipment consists of the analyzer and its electronic receiver to indicate, record and control. It is suited particularly where multiple fuels or fuels of varying composition are employed. It acts as a safety guide to prevent lighting off unpurged gas-fired combustion chambers. The analyzer and its recorder indicate and automatically control, if required, the adjustments to maintain combustion efficiency within the limits of the equipment on which it is mounted.

**The analyzer** uses the company's standard electronic type receiver to indicate either the per cent of oxygen or excess air or combustibles on a 29-in. ring scale and to record per cent of oxygen or excess air and per cent of combustibles on a 12-in. round chart. It requires inputs of the gas sample, air supply and hydrogen fuel and a little electric power.

*If you write maker identify as* **IEN - 11329**

## SIGNALING . . Switch assembly shows acceleration or deceleration

**Source: WINTERBURN MFG. CO.**
**P. O. Box 386-A, Putnam, Conn.**

**Also suited for control**

**Zero Speed** designates a new series of Dazie switches, previously described IEN-13562-52. The switch shaft connects to a rotating drive. Mercury switches, within the assembly, can be wired to open or close signal circuits in the event of acceleration or deceleration. Minimum limits are 15 rpm. in the first case and 8 rpm. in the second. The switch also indicates direction of rotation and will show idling when the shaft is stationary. Required torque is 3 inch ounces.

**The contact assemblies** are mounted in a compartment at one end of the housing where they are sealed from an enclosed compartment in which two discs are mounted on ball bearings to face each other. One disc is secured to the drive shaft. The other disc floats free and carries permanent magnets. The compartment is partially filled with silicone fluid.

**Rotating** the drive causes its disc to rotate and transfer energy to the second disc through the silicone. This moves the permanent magnets to actuate the mercury switches in one direction or the other. Rotation can be as high as 5,000 rpm. without harming the mechanism. Temperature range is from minus 20 to plus 250 deg. F.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* **IEN - 11330**

# 6 OUTSTANDING FEATURES of the ROBINSON *Metering Pump*

- Forcibly ejects fluid compounds . . . not a gravity dispenser.
- Thermostatically controlled heat . . . maximum temperature 450° F.
- 2/73 Second per ejection . . . motor driven, clutch actuated.
- Variable discharge . . . speed of ejection changed in 2 seconds without tools.
- Reduces unit costs . . . saves material, reduces rejects . . . no skilled operator required.
- Adaptable to any production technique . . . easily installed.

The Robinson Metering Pump has a wide variety of applications and, therefore, may be instrumental in solving some of your problems. Write us for further information.

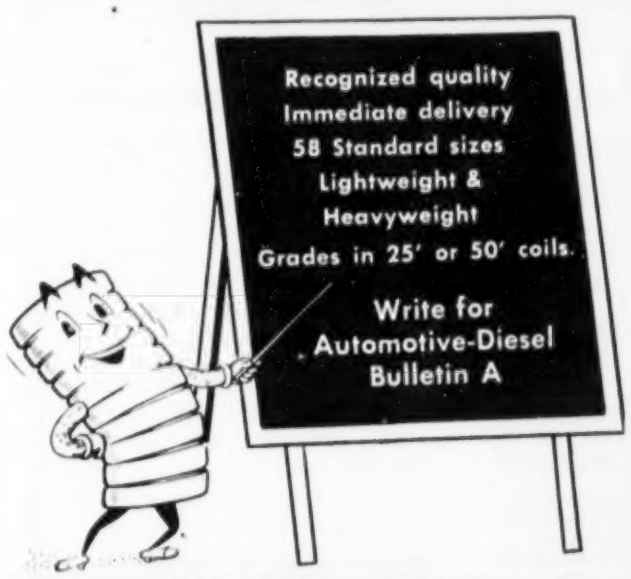
**EDWARD E. ROBINSON**
INCORPORATED
P.O. Box 14
95 PARK AVENUE • NUTLEY 10, N. J.
Telephone NUtley 2-4510

*If you write maker identify as* **IEN - 11331**

# NOW IN STOCK

*If you write maker identify as* **IEN - 11332**

# IMMEDIATE SHIPMENT ON UNIVERSAL STEELFLEX METAL TUBING




**UNIVERSAL METAL HOSE CO.**
2131 South Kedzie Ave. Chicago 23, Ill.

*If you write maker identify as* **IEN - 11333**

# NEWCOMB-DETROIT

PIONEERS IN ENGINEERING, MANUFACTURING & INSTALLING OF

INDUSTRIAL OVENS
•
SPRAY BOOTHS
•
PARTS WASHERS
•
DUST COLLECTORS
•
HEAT and AIR SYSTEMS

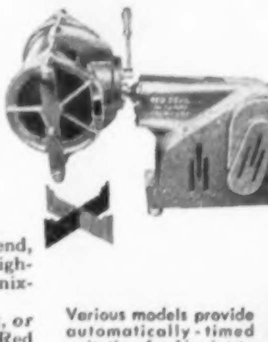
ESTABLISHED 1912
• DETROIT DIVISION
• GRAND RAPIDS DIVISION
• NEWCOMB INDUSTRIES, LTD., WINDSOR DIVISION

For Bulletins and Quotations, Wire, Write or Call—
NEWCOMB-DETROIT
5757 Russell St., Detroit 11, Mich.
TR 3-2100

If you write maker identify as IEN - 11334

better paint job with Red Devil Paint Conditioner

Paint pepped up by Red Devil Paint Conditioners goes on more smoothly, and better protects your product. Patented 3-directional motion puts pigment in perfect suspension —quick!



**NOT JUST PAINT**

Manufacturers of everything from printers' ink to putty use these machines to mix, blend, and rejuvenate all kinds of high-viscosity and low-viscosity mixtures.

If you have hard-to-mix, or *hard-to-keep-mixed blends*, Red Devil can arrange to have test samples agitated at a nearby location.

Various models provide automatically - timed agitation for ¼ pint to 5 gal. cans. Attachments for round and square containers.

Red Devil Catalog No. 21M lists all Red Devil three-way agitators and Red Devil floor maintenance machines. Write Red Devil Tools, 129 Coit Street, Irvington, New Jersey.

Products of 1868 Red Devil Tools. 129 COIT ST. IRVINGTON 11, N. J. U. S. A.

If you write maker identify as IEN - 11337

## POLISHING . . Centerless sisal buff is processed to minimize fraying

**Source: AMERICAN BUFF CO.**
**2412-16 S. La Salle St., Chicago 16, Ill.**

**Good for pre-assembly**

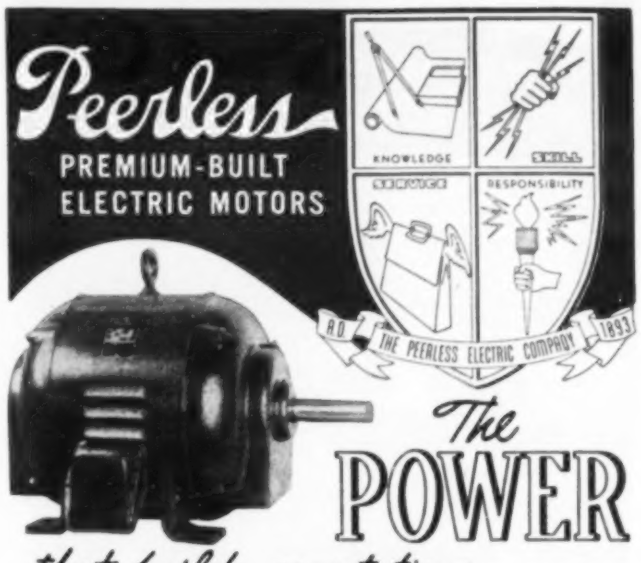
**Permanizing** trade names a new process developed by the company for its line of bias sisal buffs to lock together the fibers of sisal cloth. The process minimizes fraying, prevents excessive hardness, assures a first class finish on the work and eliminates a good many grease wheel operations. The "air conditioned" buff construction assures cool running at fast speeds.

**Individual units,** of which a part of one is shown in the illustration, are locked to build up a head of desired width. Special insert flanges with telescoping hollow shafts are applied on the two sides, are pressed together and installed on a buffing machine spindle where they are locked by the spindle nut. Complete heads can be pre-assembled and carried in stock for quick change-over.

**The centerless buff** is available in sizes ranging from 2 to 22 in. in diameter with arbor holes of various sizes to fit specified buffing equipment. The "Permanize" buffs, manufactured in centerless construction, are available in thicknesses of ¼, ⅜ and ½ inch.

If you write maker identify as IEN - 11341

Peerless PREMIUM-BUILT ELECTRIC MOTORS




The POWER that builds reputations

No greater compliment can be paid a motor than to call it Peerless. The men who build, sell and service America's finest mechanical equipment know what we mean.

"Service" by our representatives; "knowledge" of Peerless engineers; "skills" of its manufacturing personnel; and, "responsibility" of Peerless top management result in a motor with that extra something.

Yes, The Peerless Electric Company is proud to build motors with that extra something . . .

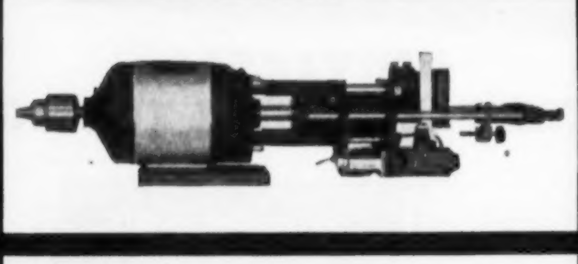
Something we call the Power That Builds Reputations.

THE PEERLESS ELECTRIC COMPANY

MOTORS FANS BLOWERS — Peerless Electric — 1415 W. MARKET ST. WARREN, OHIO

If you write maker identify as IEN - 11335

New BLACK SELF-CONTAINED DRILLING UNITS



NO SPLINES — Self-contained units, at low cost, for drilling, tapping, chamfering, reaming and similar operations.

NO GEARS — New principle employs traversing motor shaft for work spindle, applies even torque with practically no end play. Drill has air feed for rapid advance to work—hydraulic control to completion of work cycle with uniform feed. Tapping unit controlled so tap follows its own lead without chamfering first thread or stripping threads on return stroke. Easy adjustment—depth accuracy to within .001".

NO CAMS

NO CLUTCHES

NO REVOLVING WEIGHTS — Operate in any position. Wide range of speeds and sizes.

*Write for complete information*

BLACK DRILL COMPANY, INC.
1378 EAST 222nd STREET • CLEVELAND 17, OHIO

If you write maker identify as IEN - 11338

## THREADING . . Tap chuck centers shank, drives square head

**Source: ETTCO EMRICH TOOL CO.**
**571 Johnson Ave., Brooklyn 37, N. Y.**

**No collets or sleeves**

**Ground front jaws** grip and center a tap shank when the cap at the nose end of this new Visible Grip tap **chuck is turned** to tighten. Floating jaws lock on the square head when a key is turned to close these jaws in. Their grip on the head is visible through a hole in the chuck body.

**Three sizes** take taps ranging from No. 0 to 1 inch. They are made to fit taper or straight shanks which the company is prepared to supply. The smallest chuck takes taps from No. 0 to $\frac{5}{16}$ in. and lists at $8.50. The largest rates $\frac{9}{16}$ to 1 in. and lists at $18. List price for the shank is $1.20 to $7.

If you write maker identify as IEN - 11339

**Pictorial** operating instructions have been added to the Foamite and Soda-Acid 2½-gal. hand extinguishers manufactured by American-LaFrance-Foamite Corp., 137 E. LaFrance St., Elmira, N. Y. The new instructions replace the previous small hard-to-read type used for recharging instruction. They are now printed on the recharge container. A worker can employ the extinguisher after looking at the pictures.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11342

The Simplest Way to SOLVE SCALE PROBLEMS

Proven Uses Include
ALL PIPING SYSTEMS
CONDENSERS (most types)
COOLING TOWERS
ENGINES & COMPRESSORS
CUBE & FLAKE ICE MAKERS
BOILERS (to 175 wp)
*and many others*

*EVIS Water Conditioners are helping industry conquer its costly scale problems. Plant equipment is made to operate at higher efficiency. Maintenance costs are profitably lowered and shut-downs for periodic clean-ups are often entirely eliminated. The EVIS units are Specially Processed to impart a continuous catalytic action on water-solids flowing through it. This action alters physical behavior sufficiently to inhibit most scale formations. Many thousands of EVIS Water Conditioners are now in service.*

Write for further information or ask your Plumbing Supply, Air-Conditioning-Refrigeration or Industrial Equipment Jobber.

SIZES | ⅜" thru 2" screwed, 2" thru 12" flanged

EVIS IS NOT A SOFTENER

*Flow Line Type Available for Deep Well Pumps*

SOLD ON 90-DAY MONEY-BACK GUARANTEE

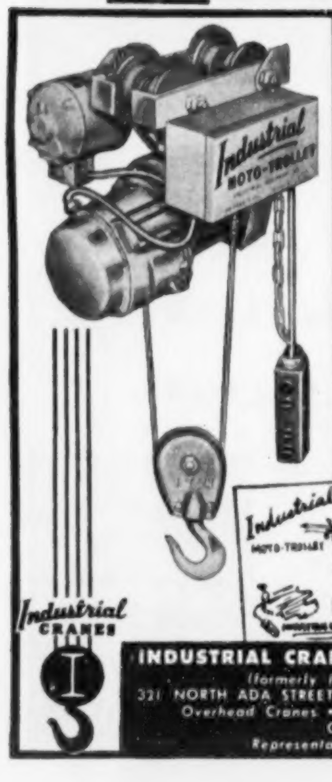
EVIS MANUFACTURING CO. 40 Boardman Place, San Francisco 3, California

FRANCHISED REGIONAL DISTRIBUTORS

WHITTIER (Calif.) · SAN BERNARDINO (Calif.) · SAN FRANCISCO · RENO · SEATTLE · CHICAGO · OMAHA · DALLAS · ATLANTA · PHILADELPHIA · ALBANY (New York) · EXCLUSIVE MARINE DIST.

If you write maker identify as IEN - 11336

Industrial MOTO-TROLLEY
The Original Packaged Motor Driven Trolley



MAY BE ATTACHED TO YOUR STANDARD ELECTRIC HOIST . . .

*Adjustable to Accommodate Wide Variety of Beam Sizes*

- Crown-tread machine steel wheels with hardened drivers.
- Each wheel equipped with double-row precision ball bearings and removable-head axle with Alemite grease fittings.
- Powered by a crane-duty high-torque totally enclosed motor of 30 minute 55 degree rating.
- Magnetic contact panel has transformer to reduce voltage in single speed push button control circuit.
- 4-button control station operates single speed trolley and hoist motions.

*Write for Literature*

Industrial Cranes

INDUSTRIAL CRANE & HOIST CORPORATION
(formerly Industrial Equipment Co.)
321 NORTH ADA STREET CHICAGO 7, ILLINOIS
Overhead Cranes • Jib Cranes • Monorail Systems
Crane Runways
Representatives in Principal Cities

If you write maker identify as IEN - 11340

USERS OF CLUTCHES
OVER-RUNNING • BACKSTOP • INDEXING

GET THIS FOLDER FOR YOUR FILES!

Explains why FORMSPRAG Clutches give greatest possible torque capacity for size and weight. Shows how the sprags grip at infinite number of positions—no backlash. Also contains basic engineering data.

FORMSPRAG COMPANY
23591 Hoover Road • Van Dyke, Michigan

FULL COMPLEMENT FORMSPRAG Clutches

Distributors in principal cities

If you write maker identify as IEN - 11343

HALO Face Shield

light as a halo!

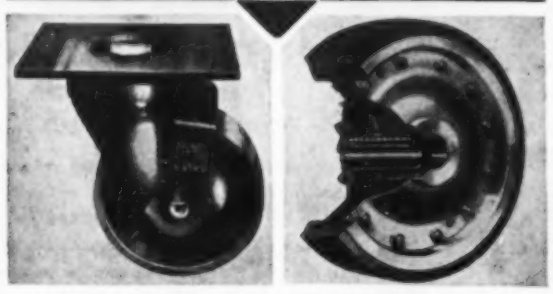
- NEW patented visor position hinge locks visor in "raised" or "working" position.
- Full protection from flying particles, chemicals, splashes, sparks, etc.
- Rugged and sturdy yet lightweight.
- Visors available in 4, 6 and 8 inch depths and .020, .040 and .060 thickness.
- 3 Models of headgear — Large spark protector, small spark protector and no spark protector.

Write for LITERATURE and PRICES.

UNITED STATES SAFETY SERVICE CO.
In Canada PARMELEE, LTD. Toronto

*If you write maker identify as* IEN - 11344

Always SWIVEL and ROLL



Darnell Casters and Wheels start cutting costs from the very first day of installation. Easy rolling and swivelling increase employee efficiency, save floors and help add to production.

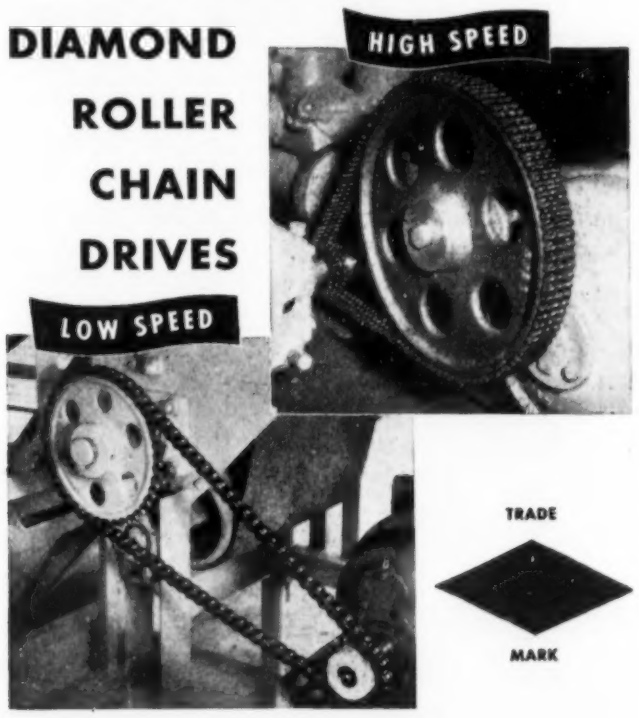
*Write for Free Darnell Manual*

**DARNELL CORPORATION, LTD.**
DOWNEY (LOS ANGELES COUNTY) CALIFORNIA
60 WALKER STREET, NEW YORK 13, NEW YORK
36 NORTH CLINTON STREET, CHICAGO 6, ILLINOIS

*If you write maker identify as* IEN - 11345

## the same *HIGH* efficiency at *ALL* speeds with

**DIAMOND ROLLER CHAIN DRIVES**




TRADE MARK

- 98-99% Efficiency Maintained.
- No Slip or Creep — Diamond Roller Chains are as positive as gears.
- Load Shared by many Sprocket Teeth.
- Stress on Bearings Reduced — and no separating forces as with gears.

Experienced machinery design engineers and production men realize the importance of high maintained efficiency of power transfer with the result that Diamond Roller Chains are in greater use today than ever before. Precision manufacture of every part, — side plates, rollers and bushings assure uniform high quality, long-life smooth performance. Catalog 709 gives useful data and information; copy mailed on request.

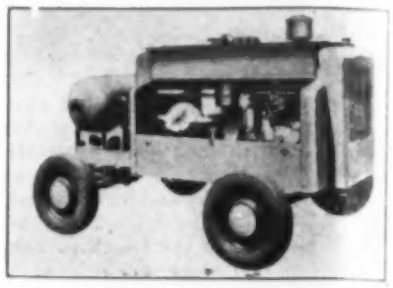
**DIAMOND CHAIN COMPANY, Inc.**
*Where High Quality is Traditional*
Dept. 465, 402 Kentucky Ave., Indianapolis 7, Indiana
*Offices and Distributors in All Principal Cities*
Refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER

DIAMOND ROLLER CHAINS

*If you write maker identify as* IEN - 11347

## COMPRESSOR . . Air cooled two stage, engine driven, mobile, rates 160 cfm.

**Source: DAVEY COMPRESSOR CO.**
264-68 N. Water St., Kent, Ohio



**Delivers to receiver**

Super Chief 160 is equipped with two 6-in. low pressure cylinders and one 5¼ in. high pressure cylinder, all with 3¾ in. stroke. The new compressor is air cooled and available with a gasoline or diesel engine in two and four-wheel trailer and skid mountings. The 4-wheel diesel powered assembly, illustrated, measures 115 by 75 by 70 in. and weighs 4,300 pounds.

**Standard equipment** includes automatic compressor and engine control, individually finned cylinders separately replaceable, forced feed lubrication, cast aluminum crankcase, multiport valves, electric starting and built-in tool box.

*If you write maker identify as* IEN - 11348

## WATER PROOFING . . Liquid plastic to brush or spray on porous masonry

**Source: SEAL-STRIP INCORPORATED**
50-40 70th St., Woodside 77, N. Y.

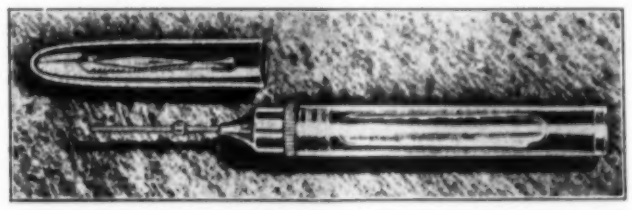
**For new work or maintenance**

Concrete blocks, mortar, cement, stucco, limestone are representative materials for which the company recommends its new Liquid Seal. The material is available in clear or aluminum color, in gallon cans listing at about $5. The liquid bonds to the masonry. One gallon covers about 220 square feet. Application can be made above or below grade. The dried film can be painted over.

*If you write maker identify as* IEN - 11349

## LUBRICATING . . Pen type oiler, flexible plastic barrel, needle nozzle

**Source: AUTOPOINT COMPANY**
1803 W. Foster Ave., Dept. 853, Chicago 40, Ill.



**Nozzle retracts to seal opening**

**Oilette** is a new oiler with a flexible transparent plastic barrel that shows the oil on hand and provides a means for delivery in drops or tiny dots through the needle type nozzle. The nozzle is protected by a clip equipped cap that permits carrying the oiler in a pocket. The oiler will reach into small spaces, is particularly suited for use on instruments, appliances, office and precision equipment.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11350

## Stop CORROSION in your Steam System WITH CORAVOL

When fed to your steam system, **CORAVOL**: (1) *prevents* corrosion in steam and condensate lines, (2) *cleans out* clogging rust deposits resulting from previous corrosion. Thus, **CORAVOL** protects lines, increases the effectiveness of heat transfer surfaces, restores original capacity of lines and the operating efficiency of valves and traps.

**CORAVOL** is part of a complete technical service which provides special chemical formulas for: Boiler Feed Water . . . Foam Prevention . . . Hot Water Supply . . . Refrigerating Brine . . . Cooling and Condenser Water . . . Rapid Scale Removal . . . Coagulation . . . Algae Control.

Write TODAY to Western Chemical Company, 715 Washington Street, Kansas City, Missouri for complete FREE data about the **CORAVOL** process.

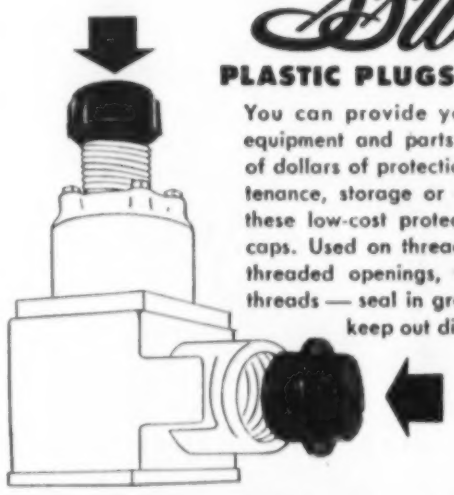
**WESTERN CHEMICAL CO.**
715 WASHINGTON KANSAS CITY, MO.

*If you write maker identify as* IEN - 11351

## STOP COSTLY DAMAGE with these inexpensive

*S.S.White*

**PLASTIC PLUGS and CAPS**



You can provide your expensive equipment and parts with hundreds of dollars of protection during maintenance, storage or equipment with these low-cost protective plugs and caps. Used on threaded studs or in threaded openings, they safeguard threads — seal in grease and oil — keep out dirt and moisture.

**WRITE FOR BULLETIN P-5203**
*It has full details on the many sizes and styles of S.S.White plastic plugs and caps.*

**THE S.S.White PLASTICS DIVISION**
**DENTAL MFG. CO.** Dept. NP, 10 East 40th St. NEW YORK 16, N. Y.
**WESTERN DISTRICT OFFICE:** Times Building, Long Beach, California

*If you write maker identify as* IEN - 11352

## 5 REASONS FOR CALLING CORDS LTD.
For Cords and Cord Sets

- ★ Fast delivery on cords of standard construction.
- ★ Complete engineering and manufacturing service on cords for special applications.
- ★ Integrated engineering-production control from rod mill to mold department.
- ★ Most comprehensive stock of dies and molds for electronic cords and assemblies in existence.
- ★ Quality proved by use on millions of products.

*Write for details, explaining your application*

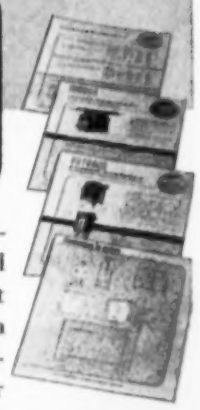
WIRE SX PRODUCTS

**CORDS LTD.**
*DIVISION OF ESSEX WIRE CORPORATION*
121 DODGE STREET, DE KALB, ILLINOIS

*If you write maker identify as* IEN - 11353

# NEW
## DIMENSION SHEETS Give Complete Information

**ALLIS-CHALMERS**
**INSTRUMENT TRANSFORMERS**



**Just off the press** — all the mechanical and electrical information you need in a convenient, completely bound set of data sheets. Gives most thorough presentation of entire line of Allis-Chalmers instrument transformers ever published. Get your copy from your nearest A-C district office or write:

Allis-Chalmers, Milwaukee 1, Wis.

A-4113

**ALLIS-CHALMERS**

*If you write maker identify as* **IEN - 11354**

# JOHNSON BAND SAWS

**SPECIFICATIONS—MODEL B**

Capacity—5" rounds, 10" flats.
Height Overall—(Closed)—32".
Blade Length—7'5" x 1/2" x 23 ga.
Floor Space—46" x 28".
Weight—(Uncrated) 235 lbs. Crated 280 lbs. Boxed for Export 400 lbs.
Wheel Diameters—10"
Motor—1/3 H.P. any voltage available.
Speeds—45, 90 and 150 ft. per min.
Casters—Optional at slight extra cost.

**MODEL J, 10" X 18" CAPACITY ALSO AVAILABLE**

*WRITE FOR DETAILS*

**JOHNSON MANUFACTURING CORP.**
ALBION, MICHIGAN

*If you write maker identify as* **IEN - 11355**

**LASTS LONGER!**

**HOUGHTON COSMOLUBE**

**multi-purpose grease**

**allows more time between applications!**

Industry's best grease buy because it gives you so many benefits . . .

- High melting point
- Pumps at 20° below zero
- Insoluble in water
- Adheres securely to metal
- Resists oxidation
- Stores without separating

GET LATEST BULLETIN on this heavy-duty grease widely used throughout industry in hot, cold, and wet locations. Write E. F. Houghton & Co., 303 W. Lehigh Ave., Phila. 33, Pa.

COSMOLUBE . . . *a product of*
**E. F. HOUGHTON & CO.**
PHILADELPHIA · CHICAGO · DETROIT · SAN FRANCISCO

*Ready to give you on-the-job service . . .*

*If you write maker identify as* **IEN - 11356**

## SAVE TIME AND MATERIALS

Oil-hardened tool steel tapered pin gages accurate to + 0.0001" − 0.0000" insure dependable sizing and location of holes and slots for machinists, set-up men, tool and die men, inspectors, all who need precise hole measurement.

CONCENTRIC TAPER on lower half of each gage fits holes 0.0012" smaller than standard letter, fraction, and number size drill holes. Makes insertion easier. Permits gaging of odd-size holes and slots.

ALL GAGES are 1½ inches long. Sets contain a pair of each size in a plastic case with 4-place decimal equivalents of each size plainly marked.

ALL ITEMS STOCKED FOR IMMEDIATE DELIVERY

**THE Horberg GAGE COMPANY**
31 STAPLES ST., BRIDGEPORT, CONN.

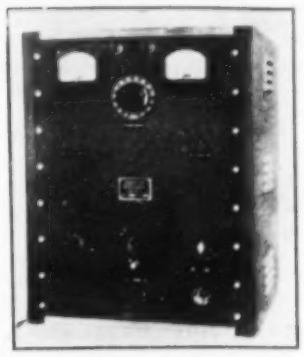
Quantity
..... Letter sets @ $45. 52 gages (A-Z)
..... Fraction Sets @ $50. 40 gages (1/64" to 1/2" in 1/64" steps)
..... Number Sets @ $90. 120 gages (1 to 60)
..... Single gages @ $ 1.
..... Stand alone @ $10.

Please Rush checked items and literature to
company .....
address .....
name .....
title .....

*If you write maker identify as* **IEN - 11357**

## TESTING . . Variable voltage unit for electrical insulation checking

**Source: INDUSTRIAL INSTRUMENTS INC.**
**87-91 Commerce Road, Cedar Grove, N. J.**



**Protects operator**

**Model P-7-20** is a new high voltage breakdown test instrument to supply current maximum at 15 ma. dc. or 20 ma. ac. with continuously variable 0 to 20,000 volts to check electric insulation. **Short circuit** is limited by the internal resistance in the tester so damage cannot occur if the short circuit current is maintained for a period of time. Cut-off control is provided so power is turned off when the load current exceeds any preset value from 50 to 20 milliamperes. Two instruments on the housing face read current and voltage.

*If you write maker identify as* **IEN - 11358**

**Pump type dispenser** is available to fit on jars of "Fend", the hand protecting cream manufactured by Mine Safety Appliances Co., 21 Braddock St., Pittsburgh 8, Pa. Depressing the plunger delivers a small amount of the cream to spread over the hands prior to starting work. The cream enters the skin pores, washes out at the end of a shift. One dispenser is supplied free with each dozen jars of cream. Additional units list at 50 cents.

*If you write maker identify as* **IEN - 11359**

## PAINTING . . Can collar attachment assists in mixing, pouring, storing

**Source: PORMIX CORPORATION**
**4 Oak Ridge St., Greenwich, Conn.**

**Patent pending**

**Quart** and gallon sizes are now available for press fit into the open tops of standard paint cans, as shown in the illustration of the new Pormix plastic paint can collar. The unit makes a tight seal and provides a means to pour, to stir without spilling over the can edge, to add pigments and thinners and to remove excess paint from a brush.

**It can be removed** to leave the sealing edge of the can clean and dry to receive the can cover. It also can be employed with cheese-cloth to strain paint or with a piece of paper as a temporary cover. List price in the gallon size is 80 cents.

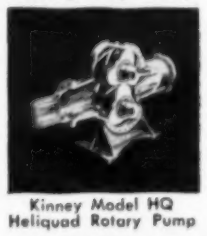
*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* **IEN - 11360**

*If you write maker identify as* **IEN - 11361**

# ROTARY
## Positive Displacement Pumps

Kinney SD Rotating Plunger Pump



Kinney Model HQ Heliquad Rotary Pump

When liquids must be handled at fixed rates of flow, it pays to install a Kinney Rotary Liquid Pump. These are furnished in two basic designs—the famous Model SD Rotating Plunger Pump and the unique Model HQ Heliquad Rotary Pump. Each design has specific advantages which make it the "pump of choice" for certain services. For instance, in barge and tanker service, the Kinney Model HQ Pump has the unusual ability of handling all viscosities from gasoline to heavy molasses. For handling viscous materials such as asphalt, grease, soap, etc., the Kinney Model SD is the outstanding favorite.

• • •

Tell us about *your* process pumping problems. Get full details on Kinney Rotary Positive Displacement Pumps—send for Bulletin L51. Kinney Manufacturing Co., 3564 Washington St., Boston 30, Mass. Representatives throughout the U. S. and in foreign countries.

Kinney — SUBSIDIARY OF THE NEW YORK AIR BRAKE CO.

*If you write maker identify as* **IEN - 11362**

# ORANGEVILLE HAND TRUCKS

**"Keep Loads Alive"**

Illustrated are a few of the many hand trucks we make for factory and warehouse use. They are typical of a wide range of available types and sizes which we can furnish in two-wheel and four-wheel designs. We also build special trucks to order to meet unusual handling needs.

*Write for Catalog 50*

FLOOR TRUCKS ORANGEVILLE

**ORANGEVILLE MFG. CO.**
ORANGEVILLE 15, PA.
*Established 1879*

*If you write maker identify as* **IEN - 11363**

# FREE TO MEN RESPONSIBLE FOR SLASHING DOCK HANDLING COSTS

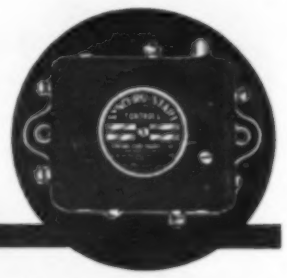
No matter what type of carriers serve your company, no matter what your present dock facilities, here is one of the most complete data files ever offered to increase your dock handling efficiency, reduce your dock handling costs. Write for yours today.

**ROWE METHODS INC.**
2534-H DETROIT AVENUE • CLEVELAND 13, OHIO

If you write maker identify as IEN - 11364

*Automatic*

## CRANKING CONTROLS



The Synchro-Start K Series provide interrupted and time limit cranking. They are small, inexpensive controls for automatic starting from any remote pilot switch.

Models available are, KI for small diesel engines and KIR for magneto ignition engines.

The KI and KIR units are provided with a connection terminal for a failure signal should it be desired.

*For further information write for Bulletin 405*

**SYNCHRO-START PRODUCTS, INC.**
8151 North Ridgeway Avenue
Skokie, Illinois

If you write maker identify as IEN - 11365

# Is your problem cutting Metals or Masonry?

*Use SKIL Flex Wheels!*

Conclusive tests prove new SKIL Flex Wheels cut faster than any other make! Designed and available only for SKIL Saws.

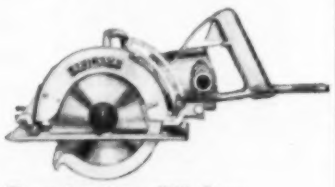
Use SKIL Saw and Flex Wheels everywhere it's more efficient to carry tool to the work. Cut iron, steel, stainless steel, brass, bronze and other hard alloys with aluminum oxide type wheel. Cut natural or cast stone, masonry materials or non-ferrous metals with silicon carbide type wheel.

Yards of heavy Nylon cord, wound concentrically and mesh reinforced, densely packed with abrasive and resinoid bonded, give these wheels maximum durability, speed and safety. This exclusive construction results in wheels that "give" without expensive and dangerous breakage.

Try SKIL Flex Wheels for those tough cutting jobs . . . you'll find them more economical because of reduced breakage, safer for inexperienced operators and longer-lasting and faster-cutting because of more actual abrasive content.

**SKIL** PORTABLE TOOLS

Made only by SKIL Corporation
formerly SKILSAW, Inc.
5033 Elston Ave., Chicago 30, Ill.
3601 Dundas Street West,
Toronto 9, Ontario
Factory Branches in All Leading Cities



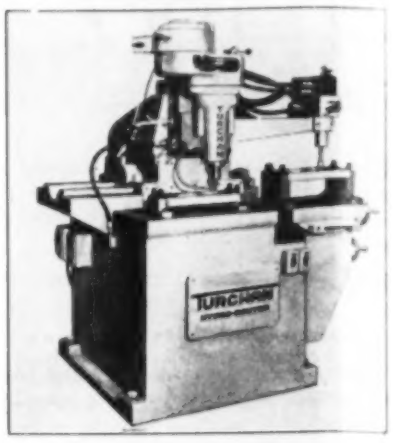
There Are More SKIL Saws in Use than Any Other Make . . . Ask to See the Complete SKIL Line — thirteen models.

Call Your Distributor or Write for "SKILSAW Problem Solver," a booklet describing cutting methods for many hard-to-cut materials.

If you write maker identify as IEN - 11367

## MILLING . . Vertical spindle machine with three dimension tracer control

Source: TURCHAN FOLLOWER MACHINE CO.
8257-61 Livernois Ave., Dept. IN, Detroit 4, Mich.



Special sizes to order

**Vertical**, transverse and longitudinal spindle movements are controlled in this new machine by the company's built-in tracer equipment operating from a pattern located on the right hand side of the machine bed. The control actuates hydraulic feeds in stepless variable rates.

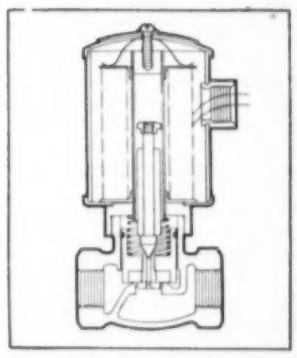
**The work table** is mounted in stationary position. It measures 32½ by 14½ in. in the smallest Model 1-24 machine in the line. Feed movements are through 24 in. in longitudinal direction of spindle travel, 12 in. in transverse direction and 8 in. vertically. Feed range is maximum at 65 ipm. with spindle speeds from 900 to 3,600 rpm. The machine occupies a floor space measuring about 77 by 48 inches. Weight is about 4,300 pounds.

**Standard equipment** includes the tracer control, a coolant tank and pump, the motor and piping, splash and chip guard, cutter adaptor drawbar and hydraulic power unit.

If you write maker identify as IEN - 11368

## VALVE . . Solenoid operated, 150 lb. steam, 500 lb. air, oil, water

Source: J. D. GOULD COMPANY
734 E. Washington St., Indianapolis 2, Ind.



No water hammer

**Two new sizes**, ½ and ¾ in., have been added to the company's Type-A solenoid pilot operated valves in which the valve stands in normally closed position when the solenoid circuit is open. Closing the circuit lifts a plunger which strikes beneath the stem head and opens the pilot port to relieve pressure on top of the piston with which the valve is held closed.

**The pilot orifice** through the center of the piston is larger than the by-pass orifice surrounding it so there is more pressure below the piston than above and line pressure forces the piston up to open the main flow and to hold in open position. Opening the solenoid circuit drops the pilot valve to its seat and pressure equalizes across the piston. At this point, the spring above the piston returns it to closed position where line pressure holds it closed.

**Construction** employs cast bronze body, stainless steel pilot valve and spring, unbreakable piston ring on the free floating piston, renewable composition disc, interchangeable solenoid coil for standard specified ac. or dc. input.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11369

**now available**

## NEW NORGREN automatic-drain filter for compressed air lines

Fully automatic draining and filtering . . . operates under constant or fluctuating air pressure . . . with or without air flow.

**WRITE FOR COMPLETE DATA**

Valves • Filters • Regulators • Lubricators • Hose Assemblies

C. A. Norgren CO.
3432 S. ELATI ST., ENGLEWOOD,
IN COLORFUL COLORADO

If you write maker identify as IEN - 11370

# BRAZING?

B&W Bulletin gives pointers on simplified design of parts made by brazing tubular products.

*Write for Bulletin TB 349*

TA-1774 (LM)

**THE BABCOCK & WILCOX COMPANY**
*TUBULAR PRODUCTS DIVISION*
Beaver Falls, Pa.—Seamless Tubing; Welded Stainless Steel Tubing
Alliance, Ohio—Welded Carbon Steel Tubing

If you write maker identify as IEN - 11371

## This camera helped speed production of PYREX casseroles

The solution to production problems may sometimes be right in front of your eyes, yet can't be seen because the operation in question is moving at high speed.

Corning Glass Works' engineers had just such a problem in machining a new high-heat-conductivity alloy into dies that were expected to press molten glass into Pyrex casseroles faster and more economically. When trouble in machining this alloy made its use doubtful, the engineers decided they wanted a look at the tool bit as it operated at 246 r.p.m. Their Kodak High Speed Camera gave it to them.

This camera takes motion pictures at speeds up to 3200 frames a second, slows motion as much as 200 times when the films are projected at normal speed. Study of their film showed Corning engineers that chips were sticking to one side of the tool bit, even though the tool was new. Further grinding was tried, and another study clearly showed the problem was solved. The special alloy *could* be properly machined, and the camera had helped show how.

Corning's high speed camera keeps busy finding answers to all sorts of problems involving mechanical action too fast for the eye to see.

*A new booklet, "High Speed Motion Picture Making In Industry," is now available. It gives you complete details on the Kodak High Speed Camera, and shows how a number of industries have used this versatile instrument to solve difficult product design and performance problems. For your copy, write to:*

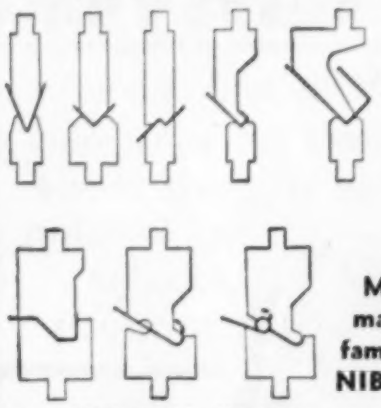
Industrial Photographic Division
**EASTMAN KODAK COMPANY**
Rochester 4, N. Y.

**the Kodak HIGH SPEED Camera**

Kodak
TRADE MARK

If you write maker identify as IEN - 11373

# BRAKE DIES



Made from FORGED CHISEL STEEL BILLETS

Made by the makers of the famous SEMCO NIBBLER PRESS

- MANY STILL IN USE EVEN AFTER 10, 20 AND EVEN 30 YEARS.
- THEY COST MORE BUT THEY LAST FOR YEARS.

Write for estimates on your work and ask for latest literature.

SEMCO
SERVICE MACHINE COMPANY
INCORPORATED
200 MILLER STREET ELIZABETH, N. J.

If you write maker identify as IEN - 11374

FLAT OR CONTOURED PRODUCTS SURFACE FINISHED WITH PRECISION

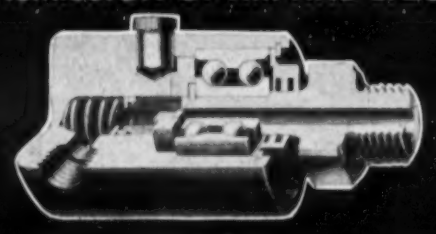
Wrenches, pliers, screw drivers, ax heads—these and other hand tools can be surface finished most efficiently with a Clair Machine. The Model 206-A, specifically developed for this type of service, is equipped for either magnetic or mechanical holding fixtures. Providing a working surface 38" wide and buffs from 3" to 12" in diameter . . . this versatile machine operates on a principle thoroughly proved in many surface finishing operations.

Write for details!

CLAIR MANUFACTURING CO., INC.
Specialized Machine Equipment For Glazing and Polishing Operations
OLEAN, N. Y.

If you write maker identify as IEN - 11375

FAWICK ROTORSEAL
PROVIDES TROUBLE-FREE TRANSMISSION OF AIR AND LIQUIDS



If your machine problem requires the transmission of air or liquids from stationary to rotating machine members, a FAWICK ROTORSEAL will provide the trouble-free, practical answer.

Precision-made ROTORSEALS are available in either single or multiple passage units, producing an absolute sealing of air, liquids, or gases under pressure. They are equally effective in vacuum applications. Thousands of installations have proved the high efficiency of FAWICK ROTORSEALS.

FAWICK AIRFLEX DIVISION
FEDERAL FAWICK CORPORATION
9919 CLINTON ROAD
CLEVELAND 11, OHIO

Write for ROTORSEAL Bulletin ML-6.

FAWICK Airflex
INDUSTRIAL CLUTCHES AND BRAKES

# IDEAS FOR YOU

Items of particular interest in the news other than straight new products, development pointing toward the future, unusual procedure to accomplish a point, suggestions for practical action, each to provide ideas for you.

If you write maker identify as IEN - 11376

**Just suppose** you are an employer in a major city and you have several representatives with whom you want to keep in

touch during the day as they travel over an area as large as 35 miles in radius. You subscribe to the new radio-paging service that has been set up in several cities and is being set in others by New York Technical Institute, 2nd Natl. Bank Bldg., Cincinnati, Ohio. Subscription is $5 to $20 per month per individual and each is given a miniature 6-oz. receiver for a returnable deposit of $35.

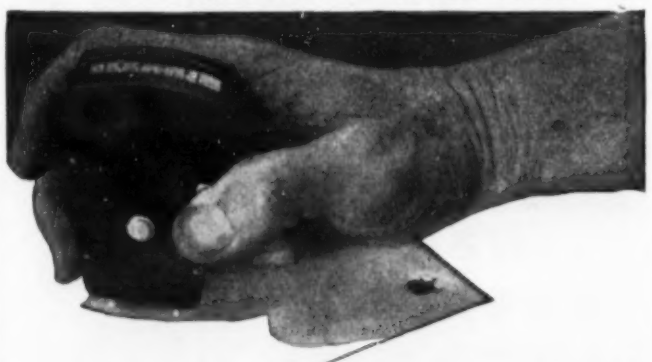
**You use** the telephone to call the headquarters of the service where a General Electric transmitter is located. Within two minutes your message is on the air and is repeatedly broadcast for the next hour. When the subscriber tries his receiver he hears what you want and follows instructions or calls back to hear what you have to tell him. He can be indoors or outside.

If you write maker identify as IEN - 11377

**Tournarope** bantam reel holds 150 ft. of ½-in. wire rope. It is supplied with a mounting bracket to apply on a tractor, scraper, bulldozer that uses the rope as a part of its operating mechanism. The rope threads from the reel through the dead-end fitting, through the sheaves to the power control. When a section shows wear, usually at the power control end, the dead-end fitting is loosened and enough more rope is pulled through so the worn end can be cut off. That leaves most of the rope still in service, makes it unnecessary to throw away any but the comparatively small worn section. Le-Tourneau-Westinghouse, 2303 N. Adams St., Peoria, Ill., supplies the reel and the rope.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11378



*How thick is the coating?*

Check with an ELCOMETER . . . new type thickness gauge for spot checks on non-magnetic coatings: porcelain enamel • paints • platings • foils • glass • paper • plastics • etc.

Accurate to ± 5% ± .0001".

For flat or curved surfaces in hard-to-get-at spots without loss of accuracy. Needle locking device assures a correct reading every time.

Comes with tough, leather case containing inner pocket for test strips.

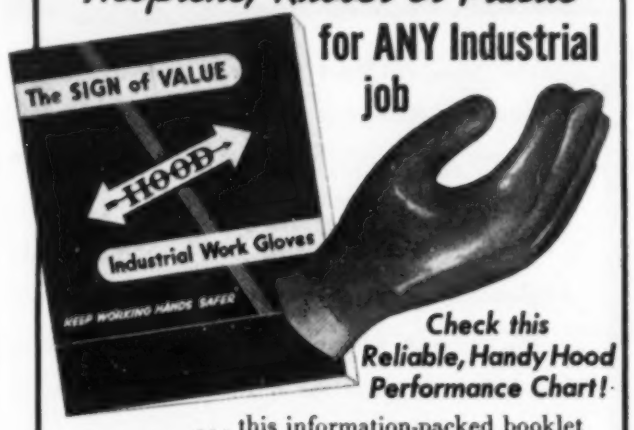
Retail price ("A" Scale) $55.00 F. O. B. Cleveland, Ohio. Special scales available. Write for illustrated folder.

FERRO
FERRO CORPORATION
4157 E. 56TH STREET
CLEVELAND 5, OHIO

If you write maker identify as IEN - 11379

FREE Send for your copy today

Helps you choose the RIGHT Hood Glove — *Neoprene, Rubber or Plastic* for ANY Industrial job

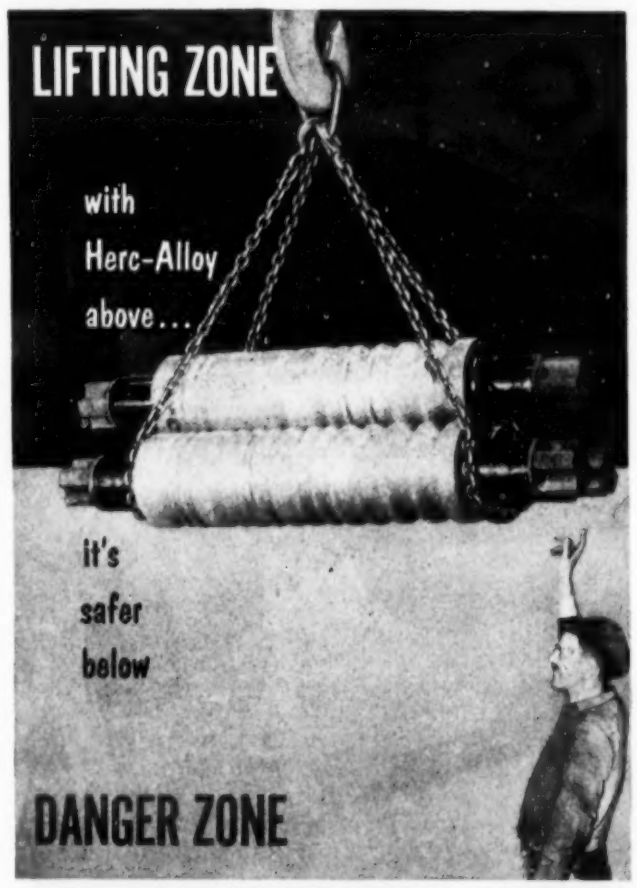



*Check this Reliable, Handy Hood Performance Chart!*

. . . this information-packed booklet shows comparative wear and chemical resistance of Hood Neoprene, Rubber and Plastic Coated Gloves, and contains illustrations and full descriptions of the complete line of Hood Industrial Gloves — top choice for *every* job in *any* industry.

HOOD RUBBER CO.
Watertown, Mass.

If you write maker identify as IEN - 11380




SPECIFY
HERC-ALLOY
SLING CHAINS

The Allegheny Ludlum Steel Corp., pictured above, uses Herc-Alloy Sling Chains for hundreds of tough lifting jobs in its plants. In addition to maximum safety, Allegheny Ludlum also enjoys the extra economy of longer-lasting Herc-Alloy.

Write for Data Book

These sling chains offer still another advantage...a weight reduction unmatched by any other alloy chain without any sacrifice in tensile strength. This reduces worker fatigue. All things considered, don't you think Herc-Alloy Sling Chains are worth a try in your plant.

HERC-ALLOY Sling Chains are registered by individual serial number and can be rebuilt or replaced at any time to original specifications.

CM HOISTS AND CHAIN
COLUMBUS McKINNON
CHAIN CORPORATION
TONAWANDA, NEW YORK
DISTRICT OFFICES: NEW YORK, CHICAGO, CLEVELAND

If you write maker identify as IEN - 11382

NEVER BEFORE! A SWITCH SO SMALL
SO LIGHT (6½ oz.) • SO LOW PRICED
AS LINEMASTER COMPACT
FOOT SWITCH

Write for folder and prices NOW.

Let us quote on your special switch requirements.

Our brand new Linemaster "COMPACT" combines unbelievable low price with the finest, most efficient design now available. It's small and light for maximum adaptability. The absolutely foolproof actuating mechanism has amazing sensitivity which permits versatile operation by foot, finger, knee or elbow. Ruggedly constructed of long lasting heavy gauge steel, featuring a handsome black crackle finish and non-skid base, "COMPACT" switch has thousands of potential profit-making industrial applications.

LINEMASTER SWITCH CORP.
426 Woodstock Terrace • Woodstock, Connecticut

If you write maker identify as IEN - 11383

it's here...
The NEW, REVOLUTIONARY
Collapsible
"PHIL-BOX"
Collapses from 28⅞" to 9 1/16" in Height

Sides are collapsed and placed in upright position ...in less than 20 seconds!

MODEL B-50

The new Phillips collapsible 5000 lb. capacity material handling "Phil-Box" is designed for saving space in storing and transporting bulk materials and parts. Quickly and easily collapsed or erected, the box interior measures 49" x 37" x 24". The "Phil-Box" has no pins or loose parts. Made of heavy gauge corrugated steel, it is of all welded construction—with smooth rolled edges for maximum safety. Can be stacked in collapsed or upright position. Fork lift or pallet truck can enter from all four sides for easy lifting.

Boxes stacked in collapsed position.

Boxes stacked in upright position.

Write for Bulletin E-14

MANUFACTURERS SINCE 1863 PHILLIPS MINE AND MILL SUPPLY COMPANY PITTSBURGH, PA.

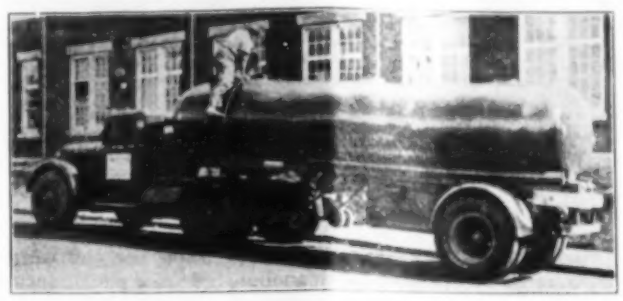
MATERIALS HANDLING EQUIPMENT

2500 JANE STREET • PITTSBURGH 3, PA.

## IDEAS FOR YOU—Continued

If you write maker identify as IEN - 11385

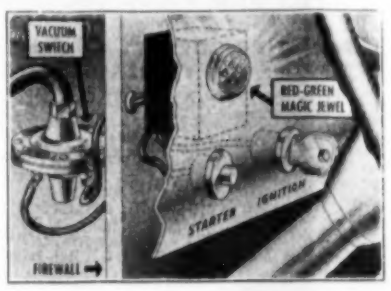
**Laminac** polyester resin and fibrous glass reinforcement make up new tank to transport liquid chemicals. The basic



material, Laminac, is made by American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y. The tank shown in the illustration holds 3,400 gallons. It measures a little under 21 ft. in length, about 6 ft. in width and 4 ft. in height. It weighs 7,025 lb. or 3,600 lb. less than the steel tank it replaces. The molding job was done by Carl N. Beetle Plastic Corporation. Mounting is on a trailer chassis by Fruehauf. The plastic is resistant to corrosion. It can be patched if it is damaged. It is not subject to chemical attack.

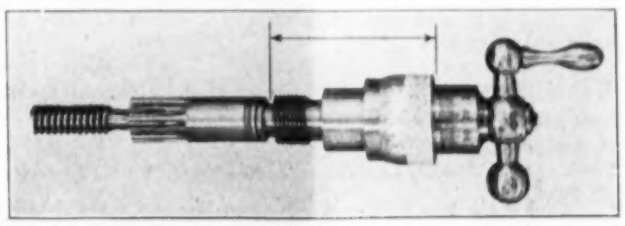
If you write maker identify as IEN - 11386

**Gyro Start-Control** is a little device to install in your automobile to signal when your engine stalls and to automatically crank it for a new start. It consists of a vacuum operated switch connecting to the intake manifold and to the solenoid in the starter circuit. It also operates a red signal lamp when the engine stalls. All you need do is put your transmission in neutral when the red light signals and the control gets you under way again. Gyro Control Company, 9242-46 Olympic Blvd., Beverly Hills, Calif., makes it.




If you write maker identify as IEN - 11387

**You can make** adjustments to 0.0001 in. if you have the new Microturn dial on the cross feed screw of your lathes. It ap-



plies on the present screw, following a minor adjustment or two. It adds an 80-pitch precision thread for axial adjustment of the screw position in "tenth" divisions. The unit is available to order, for Atlas, Logan, Sheldon and South Bend Lathes, from L. G. Arpin Co., 259-63 Hurlbut St., Orange, N. J.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11388

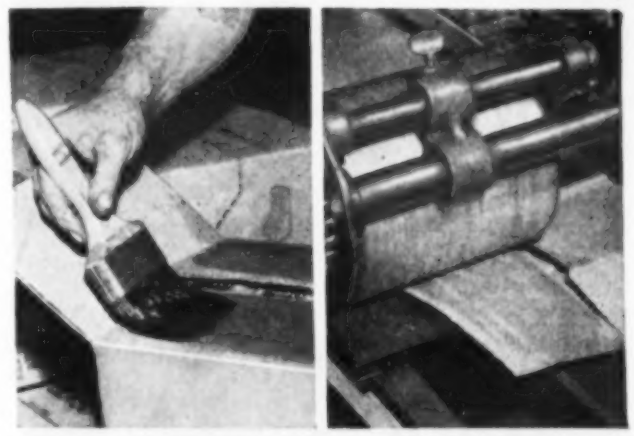
FREE DOWEL PIN BULLETIN
Tells How to Save Assembly Time!

DANLY
DOWEL PINS
• Accurately hardened—will not upset!
• Precision ground to limits of ±.0001"
• Two complete size ranges—standard and oversize
• Tapered lead end—easy to drive

DANLY MACHINE SPECIALTIES, INC.
2100 South Laramie Avenue
Chicago 50, Illinois

Complete Data!
Send For This Free Bulletin Today

If you write maker identify as IEN - 11389



SEAL CASES IN 20 SECONDS

BOXEAL is the new *fast setting* shipping case glue which tears fibres 15 to 20 seconds after application by brush or machine. Brings new high speed and efficiency to all production lines where short pressure time is essential. Permanently seals all types of shipping boxes, corrugated, Fourdrinier kraft, jute, solid fibre.

Non-toxic, odorless, stainless, and most of all . . FAST SEALING. Write today for free laboratory report and our generous trial offer.

Paisley Adhesive Service

DON'T WAIT. SEND FOR FREE ADHESIVE OPERATION DATA SHEET TODAY!

PAISLEY PRODUCTS INCORPORATED
Manufacturers of Glues, Pastes, Resin Adhesives, Cements and Related Chemical Products
1770 CANALPORT AVE., CHICAGO 16, ILL. ★ 630 W. 51st STREET, NEW YORK 19, N. Y.

If you write maker identify as IEN - 11390

U. S. ROYALASTIC PLASTIC TAPE

does the work of both rubber and friction tape

Workers, mechanics, electricians prefer Royalastic because it makes a thin splice and leaves wiring neat and uncluttered. Complete mechanical and electrical protection. High tensile strength . . . excellent resistance to abrasion and to water, oils, acids, alkalies and corrosive chemicals. Good stretch . . . clings tightly.

CHECK YOUR STOCKS. ORDER FROM YOUR DISTRIBUTOR!

Product of U.S. RUBBER SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY
MECHANICAL GOODS DIVISION • Rockefeller Center, New York 20, N. Y.

If you write maker identify as IEN - 11391

UNIT 357
MOBILE CRANE
• Self-Propelled
• Rides on Rubber
• Has 1001 Uses

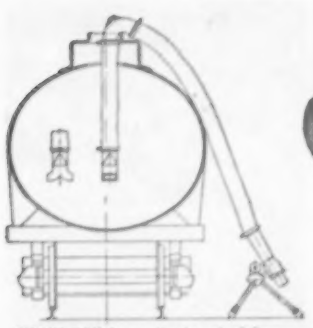
Speed Up Material Handling

Here's a handy, mobile crane for lifting or loading jobs around your plant. Ideal for dismantling, moving or erecting machinery . . . loading and unloading structural iron, pipe, bars, lumber and equipment of all types. The UNIT 357 is self-propelled . . . rides on rubber at road travel speed . . . is easy to maneuver even in cramped yard conditions. Operated by ONE man . . . powered by ONE engine . . . swings in a 360° circle. Full vision cab gives complete visibility. Promotes Safety. Write for Catalog.

UNIT CRANE & SHOVEL CORP.
6605 W. Burnham Street, Milwaukee 14, Wis., U. S. A.

UNIT
CRANES • CLAMSHELLS • MAGNETS

*If you write maker identify as* IEN - 11392



TANK CAR is easily freed of fumes for workers' safety.

CHEMICAL STILL is here ventilated while being repaired.

# KEEP AIR FRESH

*in confined places with* COPPUS *Design "A" Ventilator*

Improve workers' safety — health — comfort — efficiency. Get rid of dangerous gases, fumes, stagnant air. Coppus Design "A" Ventilator ventilates tanks, tank cars, drums, vats, underground cable manholes, pipe galleries, airplane wing compartments, fuselages. For complete information, write Coppus Engineering Corporation, 150 Park Ave., Worcester 2, Mass. Sales Offices in *Thomas' Register*.

Other "Blue Ribbon" Products in *Chemical Engineering Catalog, Refinery Catalog, Best's Safety Directory* and *Mining Catalogs*.

ANOTHER COPPUS "BLUE RIBBON" PRODUCT

*If you write maker identify as* IEN - 11393

# 115 million cycles without a breakdown!

**Torture Test Proves COMAR RELAYS are Tough**

*Illustration shows a typical Comar Telephone Type "TM" Relay recently subjected to exhaustive tests by a Comar user. Results: 115 million cycles without a breakdown!*

Comar relays stand up under severest operating conditions. They are engineered to far exceed normal performance and circuit requirements. Precision workmanship and top quality is your assurance of dependable operation. Comar specializes in relays custom-engineered to fit your needs. Send specifications for our recommendations, no obligation.

**COMAR** ELECTRIC COMPANY
3349 Addison St.
Chicago 18, Illinois

*Write For Free Catalog*

Relays • Transformers • Solenoids
Switches • Coils • Hermetic Sealing

*If you write maker identify as* IEN - 11394

# AIR CYLINDER POWER UNIT

offers a choice *of* SIX BUILT-IN VALVES

Now, the Bellows Air Motor — the only air cylinder with an integral valve — offers a choice of six built-in valves:

1. Finger-touch manual control valve.
2. Low voltage electrical control — standard or explosion-proof.
3. 110 volt maintained contact electrical control.
4. Maintained pressure air pilot valve control.
5. Momentary exhaust air poppet valve control.
6. Continuous cycling control.

Here is a range of air cylinders with integral valving that offers the engineer every latitude in pneumatic design.

**Completely described in Bulletin CL-50 FREE on Request.** *Write for it today, Dept. IEN 1053.*

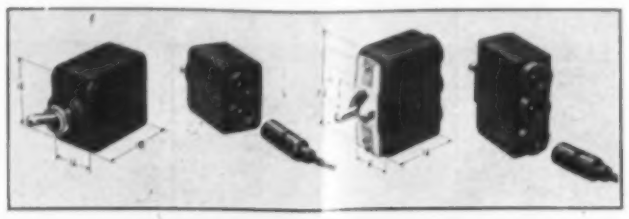
821A

The Bellows Co.
AKRON 9, OHIO

*If you write maker identify as* IEN - 11395

# SWITCH . . Toggle designs, water proof, to 15 amp. on 110 volt ac.

**Source: RIVERSIDE MFG. & ELECTRICAL SUPPLY CO. 10226-30 Michigan Ave., Dearborn, Mich.**



**Connector receptacles are molded in**

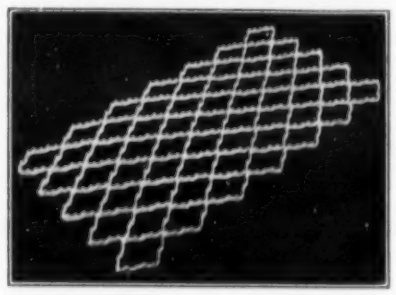
**Series 19-ACM,** to the left in the illustration, is a new water proof toggle switch to mount in a single hole in a panel. Series 29-ACM, to the right, is flush mounting design. Both carry molded-in water proof connector receptacles to take water proof plugs so leads need not be vulcanized to the housing.

**Switching action** can be specified for single-pole single-throw or single-pole double-throw in eight toggle arrangements, plain or with a center "off" position. Both switch designs meet government specifications and operate satisfactorily in a temperature range from minus 65 to plus 160 deg. F. Series 19 rates 25 amp. on 24-volt dc., 11 amp. on 110-volt ac. Series 29 rates 25 amp on 24-volt dc., 15 amp. on 110-volt ac., both based on a resistive load.

*If you write maker identify as* IEN - 11396

# FLOORS . . Non-skid grille for slippery areas and steep inclines

**Source: BUSTIN FIRM-GRIP GRATING CORP. 110 E. 130th St., 2nd Floor, New York 37, N. Y.**



**Cut sizes to order**

**Safe walking** and firm footing are provided in grease, oil, snow, sleet, by application of the new Coroweld non-skid grille. It is made by forming and weld assembly of ⅛-in. steel strip, ranging from ⅜ to ¾ in. in height, to produce a diamond shaped pattern in which the diamonds are 3⅝ in. in length by 2½ in. in width.

**Type G** ranges from 1½ to 3 lb. per square foot and lists at $1.10 to $1.60 with galvanized finish. Standard panel widths start at 2½ in. and are maximum at 50 inches. Lengths are standard to 16 feet.

**Type M** ranges from 2¼ to a little over 5 lb. per square foot. This grille lists at $2.18 to $3.05 per sq. ft. in galvanized finish.

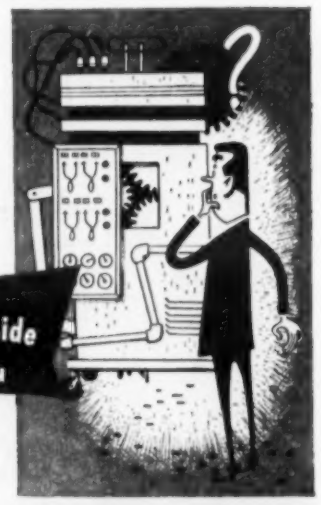
*If you write maker identify as* IEN - 11397

**No hot pitch** kettle is required when you lay a wood block floor with the new cold adhesive known as Bos'n No. 73 Cement. It is an emulsified bituminous mixture that is very tacky at normal room temperatures. Spread is 20 to 40 sq. ft. per gallon. Manufacturer is Smith-Bercall Co., 69-73 Grove St., Paterson 3, N. J.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11398

The freezer's automatic
The stove and TV too
The washer shuts itself off
Then starts itself anew
The car's a
Mushomatic Eight
Remote controlled by knee
And who's in charge of
all this stuff?
Unautomatic me!



**CASTINGS on the lighter side by WELLMAN**

If weight is a factor in the product *you're* in charge of purchasing, engineering or manufacturing, turn *automatically* to WELLMAN.

*We've* been in charge of producing castings on the lighter side, aluminum and magnesium, for almost half a century.

Catalog No. 53 will fill you in on the details.

*Well-Cast* MAGNESIUM AND ALUMINUM CASTINGS
*Well-Made* WOOD AND METAL PATTERNS

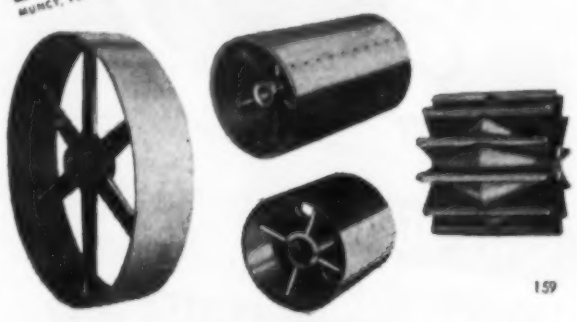
THE WELLMAN BRONZE & ALUMINUM CO.
Dept. 9, 12800 Shaker Boulevard Cleveland 20, Ohio

*If you write maker identify as* IEN - 11399

SPROUT WALDRON S/W MUNCY, PENNSYLVANIA

# PULLEYS

*SOLID FACE and BELT SAVER*



159

In handling rough, abrasive materials, S/W exclusive Belt Saver Pulleys are lengthening belt life as much as 400%. Equally well recognized is the S/W Blue Face Pulley Line in standard and made-to-order types and sizes. Write today for literature.

**Sprout-Waldron & Co., Inc., 5 Logan Street, Muncy, Penna.**

Vertical Mixers, Attrition Mills, Rotary Feeders, Ribbon Type Mixers, Crushers, Knife Cutters, Continuous Mixers, Roller Mills, Separators, Pulleys

SPROUT-WALDRON

*If you write maker identify as* IEN - 11400

A well-designed hydraulic circuit can help bring soaring costs down to earth . . . in your product, in your plant. The best-designed hydraulic circuits are built around Gerotor pumps . . . for high efficiency, longer life, less slippage, more uniform flow. Specify Gerotor!

GEROTOR MAY CORP., BALTIMORE 3, MD.

*If you write maker identify as* IEN - 11401

# RUBBER-TO-METAL BONDING

Through modern compounding and adhesive techniques developed in the Acushnet laboratories, the best properties of metal and rubber (natural & synthetic) can be combined in one bonded unit to obtain strength, toughness and resiliency, as well as shock and vibration absorption, sound abatement, electrical insulation or conductivity, corrosion and abrasion resistance, etc. Our engineers will gladly study your prints and make prompt recommendations.

*Send for your copy of Acushnet illustrated catalog supplement—"Rubber-to-Metal Bonding"*

*Acushnet* PROCESS COMPANY
Address correspondence to 760 Belleville Ave., New Bedford, Mass.

*If you write maker identify as* **IEN - 11402**

**Eliminate leakage in hydraulic and pneumatic cylinders** . . . assure positive sealing and longer packing life by maintaining constant contact between packing lip and cylinder wall. **HPL** Cup Expanders are highly impervious to the effects of brine, alcohol and gasoline . . . easily and quickly installed without special adapters or design changes in clamping plate. **HPL** Cup Expanders are especially recommended for cylinders less than 3 inches in diameter.

1956-HPL

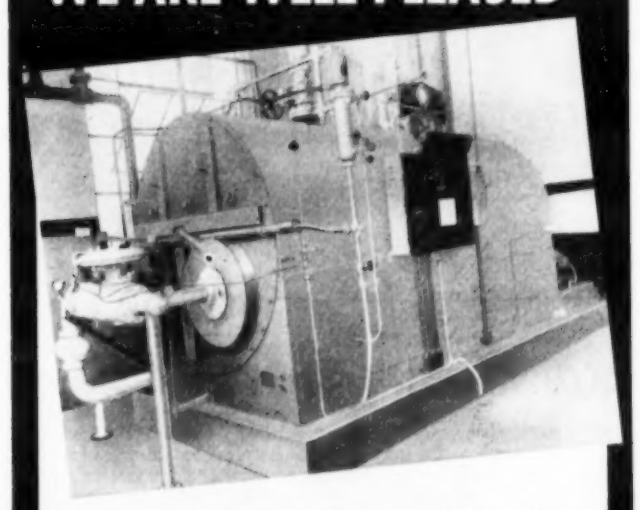
*Write today for Bulletin No. 621*

**HPL Manufacturing Co.**

15175 MILES AVENUE • CLEVELAND 28, OHIO

*If you write maker identify as* **IEN - 11403**

**"EXCELLENT SERVICE— WE ARE WELL PLEASED"**



**—says Sanitary Farm Dairies, Inc., Houston, Texas, of their 160 H.P.**

***Dutton* *Econo-THERM* Boiler**

OFF-CENTER FIRING . . .
GAS, OIL OR COMBINATION

Sanitary FARM DAIRIES Inc.
Extra Care Makes It Extra Good
May 18, 1953
Hapman-Dutton Company
Kalamazoo, Michigan
Gentlemen:
We have now had our Hapman-Dutton EconoTherm Steam Generator in operation for approximately 24 months. During this time it has given us excellent service and we are well pleased with it. This generator has been operating approximately 16 hours each day since it was installed.
We believe that anyone wishing to purchase a new steam generator could not go wrong in purchasing a Hapman-Dutton EconoTherm Steam Generator.
Very truly yours,
SANITARY FARM DAIRIES, INC.
C. H. Riedel

**GOT YOUR COPY YET?**
NEW BULLETIN describes all EconoTherm sizes—shows why they'll save you money! WRITE FOR BULLETIN EC-52M

**CHECK FIRST with *Dutton* BOILERS**

FOUR TYPES — SIZES FROM 5 TO 250 H.P.

DIVISION HAPMAN-DUTTON COMPANY
KALAMAZOO, MICHIGAN • BOILER BUILDERS SINCE 1880

*If you write maker identify as* **IEN - 11405**

## MOTOR . . Axial piston pneumatic for reversible variable speed drive

**Source: KELLER TOOL CO.**
**1948 Parks St., Grand Haven, Mich.**

**Catalog Section 70**

**Rating** is from ¼ to 2¾ hp. in 12 combinations of speed and torque in this new Series-70A line of axial piston pneumatic motors. Air consumption ranges from 21 to 83 cfm. The motor can remain stalled for any period of time.

**It reverses** instantly and is suited for application such as valve operation, agitator drive, tilting table drive and as a variable speed drive for overhead cranes. The speed is variable in stepless adjustment between stand still and maximum. Operation is characterized by freedom from sparking.

*If you write maker identify as* **IEN - 11406**

## INSULATING . . Quick drying liquid protects metal surfaces to 5,000 deg. F.

**Source: B. F. GOODRICH COMPANY**
**448-52 S. Main St., Akron 11, Ohio**

**Initially for guided missiles**

**Pyrolock** is a new liquid for spray application on metal surfaces. A coat measuring 1/32 in. in thickness will protect a metal surface for a maximum interval of 10 sec. against an impinging flame temperature higher than the melting point of the metal.

**The liquid** is a water base inorganic material. It is nontoxic, non-flammable, non-explosive and will adhere directly to clean metal surfaces without need to sandblast or special surface preparation. A dry layer bonds itself to the metal with strength that will withstand sharp impact, short of actual deformation of the metal itself. The coating is resistant to most solvents and chemicals. It will stand up in service continuously between minus 60 and plus 165 deg. F.

*If you write maker identify as* **IEN - 11407**

## HEATING . . Vertical space unit circular casing and steam coil design

**Source: MODINE MFG. CO.**
**1724 Racine St., Racine, Wis.**

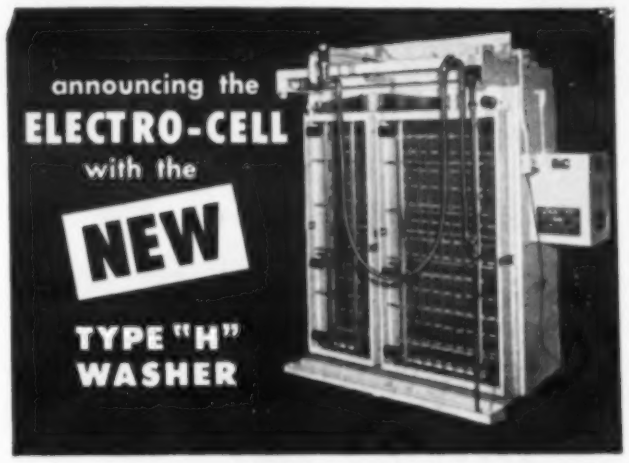
**Bulletin 153**

**Ratings** are to 600,500 btu. per hr. for this new line of steam heated space units. The line features light weight compared to capacity, the largest assembly weighing 284 pounds. Outlet air temperature ranges from 110 to 120 deg. F. Five designs of air deflector are available to order. The line includes 13 sizes for normal steam pressures and 13 for high pressure.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* **IEN - 11408**

*If you write maker identify as* **IEN - 11409**




Another "first" from AAF. The Type "H" Washer as an integral part of an ELECTRO-CELL precipitator provides "push-button" control of the cleaning operation. The washer travels on an overhead trackway which keeps it operating freely. The vertical header carrying the spray nozzle is rotated at each end of the travel to provide the necessary 5 degree lead to assure thorough cleaning of the plates.

Write for Bulletin No. 252 giving technical data and descriptive information on this latest AAF achievement to:

**American Air Filter COMPANY, INC.**
335 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal, P.Q.

*If you write maker identify as* **IEN - 11410**

New "off-the-shelf" availability is now brought to roller chain drives. Taper-Lock bushings are available in sizes for most needs—no more boring sprockets to fit shafts. No turning and grinding of shaft necessary—Taper-Lock grips with firmness of a shrunk-on fit. Dodge roller chain is made to highest quality standards.

Complete range of B-type steel sprockets and roller chain available from stock — ½" to 1¼" pitch. For details write for Bulletin A-624.

**DODGE MFG. CORPORATION**
**600 Union Street, Mishawaka, Ind.**

**— and Dodge Roller Chain**

**DODGE**
*of Mishawaka, Ind.*

*If you write maker identify as* **IEN - 11411**

**MAXAW 800**
**magic pivot does it!**

**HEAVY DUTY—ALL BALL AND ROLLER BEARING—INDUSTRIAL QUALITY**

**$89.50**

**Out-performs saws selling up to $145!**

Here's the saw that bears down with that *extra cushion* of power and sings through the tougher cutting jobs in maintenance and industrial sawing. Cuts full 2-in. rough or semi-dressed lumber *with blade to spare*—2¾" on a straight cut, and 2 9/32" on a 45° bevel. **magic • pivot** does it!

And **magic • pivot** cuts down saw weight . . . MAXAW 800 weighs only 14 lbs.—⅓ less than conventional 8-in. saws . . . puts less handicap on men and muscles. Get all the facts—do more—save more—with **magic • pivot** MAXAW 800!

*Free Pamphlet!* — Find out what **magic • pivot** can do for you. Send for Pamphlet 1-103.

**Cummins-Chicago Corp.**
DIVISIONS:
Cummins INDUSTRIALS • Cummins Portable Tools
4740 N. Ravenswood Ave. • Chicago 40, Illinois
IN CANADA: 334 Lauder Ave., Toronto

If you write maker identify as IEN - 11412

For Faster Assemblies

*use a*

# "YANKEE"

*Quick-Return* Spiral

Screw Driver

Quick-Return Style
Nos. 130A, 131A, 135

Standard Style
(without Quick Return Spring).
Nos. 30A, 31A, 35

A push on the handle and the screw is off to a spinning start! Up with the arm and the driver is ready for the next push. Constant spring pressure keeps the bit in the screw slot. This quick-return feature of the "Yankee" Spiral Screw Driver helps one hand do the work of two, easier and faster.

*Ask your Industrial Supply Distributor about these and other "Yankee" Tools that put an extra push into every job.*

**Write today for the "Yankee" Tool Book**

"YANKEE" TOOLS NOW PART OF STANLEY THE TOOL BOX OF THE WORLD

**NORTH BROS. MFG. CO.**
**Philadelphia 33, Pa.**

If you write maker identify as IEN - 11413

## Take surface temperatures quickly, accurately... with the

**The handy Alnor Pyrocon is unequaled for quick, accurate reading of all surface temperatures . . . whether surfaces are metallic or non-metallic, flat or curved. Accurate temperatures are easily understood on the Pyrocon's direct reading scale face . . . without interpolation or need of conversion tables. A wide selection of thermocouples and extension arms permits adaptation to many types of service. For complete details and prices, send for Bulletin No. 4257. Illinois Testing Laboratories Inc., Room 517, 420 N. LaSalle Street, Chicago 10, Ill.**

*Alnor* PRECISION INSTRUMENTS FOR EVERY INDUSTRY

If you write maker identify as IEN - 11414

## NEW SBS WATERLESS WASHSTATION*

"brings the washroom to the worker"*
for only $52.50 per unit
(F.O.B. Saginaw, Mich.
Towel Dispensers not included)

SBS Waterless Washstations are complete units for hand washing on the job. Because they dispense SBS-30 Waterless Skin Cleanser, these Washstations require no plumbing . . . SBS-30 is simply rubbed on the hands and wiped off along with all the soil.

**SBS Waterless Washstations —**

- **In Trouble Spots** — Avoids workers use of irritating, harmful solvents. Quickly and safely removes tars, greases, paints, varnishes and other hard-to-remove soils.
- **On the Production Line** — Cuts to a minimum costly interruptions for hand washing.
- **Actually Earn You Money** — By eliminating one unnecessary trip per day for hand washing by only 10 men, you can save up to $720 annually.

**Fill out and mail the coupon below** for complete information about SBS Waterless Washstations and our 30-day no-risk money back trial offer.

*Trademark

92-A

SUGAR BEET PRODUCTS CO., Dept. 7E, SAGINAW, MICHIGAN
Sirs: Please send me full information about the new SBS Waterless Washstation and your 30 day no-risk money back trial offer.
NAME
TITLE
COMPANY
CITY ZONE STATE

**SUGAR BEET PRODUCTS CO. • Saginaw, Mich.**
**Chemical By-Products Division**

If you write maker identify as IEN - 11415

## HANDLING . . Caster mounted box stacks or moves by hand or tractor

**Source: RACK ENGINEERING CO.**
**6th St. & Leisenring Ave., Connellsville, Pa.**

**Load is visible**

Wire **mesh sides** and corner posts with nesting pins and sockets characterize the construction of this new Stock Carrier. The sides drop down on hinges. The casters include two swivel and two rigid 6-in. roller units. Brackets are provided for entrance of the forks of a lift truck to permit raising an empty or full box for stacking. Maximum is six units in height. Load rating is nominal at 1 ton. Sizes are to specification by the user.

If you write maker identify as IEN - 11416

## SEALING . . Thermosetting resin to pressure impregnate porous castings

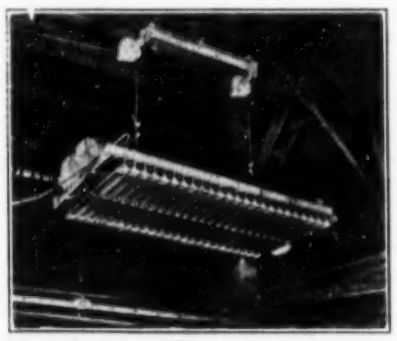
**Source: TINCHER PRODUCTS CO.**
**814 Borden Ave., Sycamore, Ill.**

**Washes off in warm water**

**Imprex** trade names a new liquid alkyd resin for application by means of vacuum pressure impregnating equipment to fill porous castings, after they have been cleaned to free them from oil or grease. The operation includes evacuating to 29 in. of vacuum in the processing equipment, flowing the sealing liquid into the vessel so the castings are covered and then applying air pressure at 100 pounds. The pressure is released and the castings are removed and washed in warm water to remove the excess liquid. Then they are baked for one hour at 170 deg. F. and for another hour at 250 deg. F.

**The plastic** is non-toxic. It has a flash point about the same as kerosene and a slight odor that is not displeasing. It will withstand temperatures to 400 deg. F. after it has been cured in place in the casting pores. It is immune to attack by most chemicals and gases. It qualifies for Government contracts calling for impregnation.

If you write maker identify as IEN - 11417



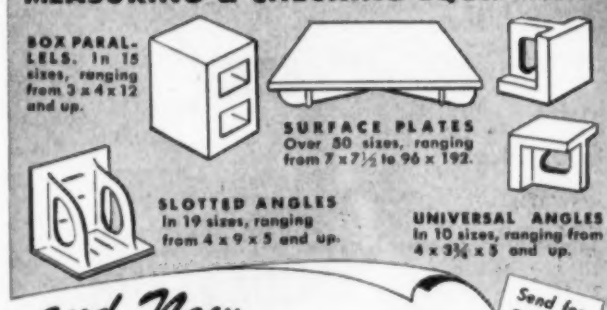
**Silicone wash** can be dried on foundry molds in a little over seven minutes by application of a new assembly of Chromalox infra-red heating elements. The assembly hangs up in the air when it is not in use. It lowers to ride just above the molds as they move along a conveyor. A single bank of 24 heaters rate 1.8 kw. each. It is made by Edwin L. Wiegand Co., 7505 Thomas Blvd., Pittsburgh 8, Pa. It replaces a previous overnight job that involved extra handling.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11418

*Dependable*

## MEASURING & CHECKING EQUIPMENT



BOX PARALLELS. In 15 sizes, ranging from 3 x 4 x 12 and up.

SURFACE PLATES Over 80 sizes, ranging from 7 x 7½ to 96 x 192.

SLOTTED ANGLES In 19 sizes, ranging from 4 x 9 x 5 and up.

UNIVERSAL ANGLES In 10 sizes, ranging from 4 x 3¾ x 5 and up.

*and Now*

**HAND WHEELS, KNOBS, HANDLES**

*Cadmium Plated* READY TO DELIVER

*Non-rusting — good looking*

STRAIGHT and OFFSET TYPE

SOLID ROTARY MACHINE HANDLES

CAST IRON

MALLEABLE IRON

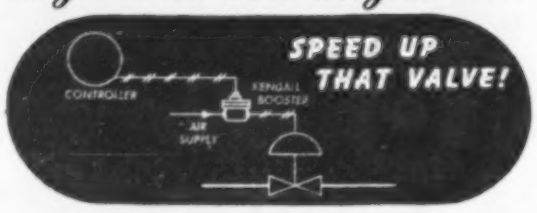
Send for Complete Catalog

**We also build jigs, fixtures, special tools and machinery. Send us your blueprints.**

**MACHINE PRODUCTS CORPORATION**
6771 E. McNichols Rd. Dept. F Detroit 12, Mich.

If you write maker identify as IEN - 11419

*Engineered Air Regulation*




*We say* — **it's easy and inexpensive to minimize valve response lag in even the biggest diaphragm motor or cylinder type actuator when a KENDALL Booster triggers the action.**

Prove our statement by testing this air volume amplifier on your most sluggish valve.

Write for Bulletin 4522 describing the Kendall Model 20 Precision Air Volume Booster with its

- **High capacity — both supply and relief**
- **Perfect balance against supply pressure changes**
- **Precise ratios**

| Ratio No. | Loading Pressure | Output Pressure |
|---|---|---|
| 1 | Each 1 PSI | produces 1 PSI |
| 1/2 | " 1 " | " 1/2 " |
| 1/3 | " 1 " | " 1/3 " |
| 2 | " 1 " | " 2 " |
| 3 | " 1 " | " 3 " |

**KENDALL CONTROLS CORPORATION**
144 MOODY STREET WALTHAM 54, MASS.

If you write maker identify as IEN - 11420

Comes in metal instrument chest complete with gas sampling accessories

## ACCURATE $CO_2$ Analysis in 40 Seconds!

Other outstanding features of the FYRITE $CO_2$ Indicator are its durable, fool-proof construction and unmatched convenience of operation. It requires no setting-up, has no valves or leveling bottle to manipulate.

The FYRITE measures $CO_2$ directly by the fundamental method of chemical absorption. Consequently, the reading is independent of voltage, humidity, temperature, or atmospheric pressure conditions.

Comes complete with chemical charge good for at least 300 readings. Replacing chemical merely requires removing four screws that hold top assembly in place.

*Write for Bulletin 805*

**BACHARACH Industrial Instrument Company**
**7301 Penn Avenue • Pittsburgh 8, Pa.**

If you write maker identify as IEN - 11421

## BACK PRESSURE VALVES . . .

No. 135 illustrated — Klipfel Cup Disc back pressure and relief valve cuts size required to half that of other types. Very large capacity with closer, chatter-free regulation. Closes tight with minimum blow down. For maximum inlet pressures 80 to 300 lbs. according to size. Other types available. GET BULLETIN 648.

**Call Your Supply House or See Classified Phone Directories for Nearest KLIPFEL Distributor.**

Alabama Birmingham
Arizona Phoenix
California San Francisco Los Angeles
Colorado Denver
Florida Tampa
Georgia Atlanta
Illinois Chicago
Indiana Evansville Indianapolis
Louisiana New Orleans
Massachusetts Boston
Michigan Detroit
Minnesota Minneapolis
Missouri St. Louis Kansas City
Montana Billings
New York Buffalo New York Syracuse
New Mexico Albuquerque
North Carolina Greensboro
Ohio Cincinnati Cleveland
Oklahoma Tulsa
Oregon Portland
Pennsylvania Pittsburgh Philadelphia
Texas Dallas
Tennessee Memphis Nashville Knoxville
Utah Salt Lake City
Washington Spokane Seattle
Wisconsin Milwaukee
Canada Montreal

K-94C

**Klipfel VALVES, INC.** HAMILTON, OHIO

If you write maker identify as IEN - 11422

# GRITCLOTH

OPEN MESH SANDING FABRIC

REVOLUTIONARY DISCOVERY... "HEARD 'ROUND THE WORLD"!

10 to 15 TIMES LONGER LIFE than the conventional types of coated abrasives.

NON-LOADING . . OPEN MESH LETS THE REMOVED PARTICLES FLOW RIGHT THROUGH.

THOUSANDS OF SUPER-SHARP EDGES KEEP ON CUTTING

APPLICATIONS ARE LIMITLESS . . . each day finds a new successful operation for this Miracle Modern Sanding Fabric.

- USE WET OR DRY
- FLAT OR FOLDED
- BY MACHINE OR HAND
- BOTH SIDES

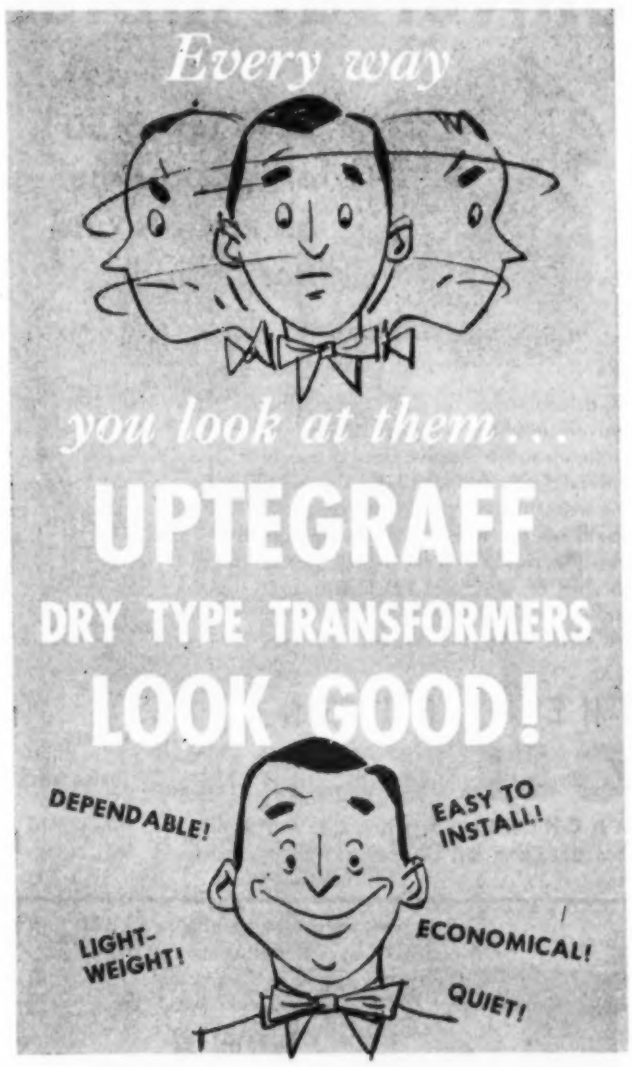
BAY STATE

**Bay State Abrasive Products Co.**
**Westboro, Massachusetts**

Branch Offices and Warehouses — Chicago, Cleveland, Detroit, Pittsburgh
Distributors — All Principal Cities
In Canada: Bay State Abrasive Products Co. (Canada) Ltd., Brantford, Ontario

GRITCLOTH... a BAY STATE Pioneered Product

If you write maker identify as IEN - 11423




## Sizes 0.1 KVA to 2,000 KVA

*Left*—Type E Specialty Transformer, for cabinet or indoor service. Ratings—0.1 to 10.0 KVA.

*Right*—25 KVA Uptegraff Dry Type Distribution Transformer.

*Left*—Open-coil transformer, type F, for indoor service. Ratings —0.1 to 15 KVA.

*Right*—Uptegraff type DP air-cooled Power Transformer. Made in ratings up to 2000 KVA, 14,400 volts.

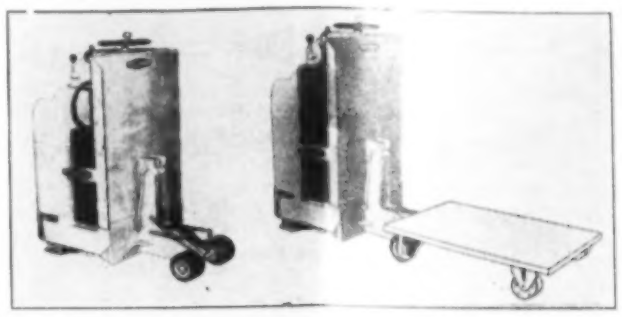
*Write for complete information*

**R. E. Uptegraff Manufacturing Co.**
Scottdale, Pennsylvania
*Makers of* POWER · DISTRIBUTION · INSTRUMENT · SPECIALTY TRANSFORMERS

If you write maker identify as IEN - 11425

## TRUCK . . Power lift tracto handles semi-live skid loads to 2 ton

**Source: RAYMOND CORPORATION**
**35111 Madison St., Greene, N. Y.**



**Model E2X is illustrated**

**The operator** rides this new electric power lift tractor. He brings the unit into position at the leg end of a semi-live skid and operates his lift control. A hydraulic cylinder then raises an arm to pick the leg end of the skid up from the floor and form a pivot point between the skid and the tractor.

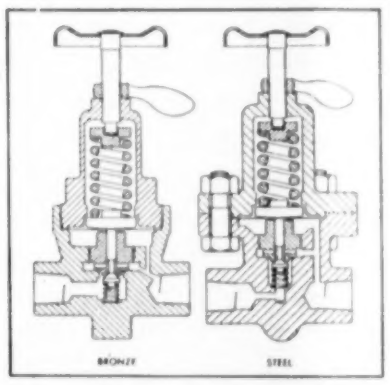
**In this position,** he operates the travel controls to move the load in a desired direction. Load capacity is 2 ton. A turn can be made in 40 by 48-in. intersecting aisles with a skid measuring 24 by 60 inches. Power is supplied by a 400 amp. hr. battery for speeds to 5 miles per hour.

**Lowered height** of the elevating arm is 5¾ inches. Elevated height is 9½ inches. Draw bar pull on a dry level concrete floor is 200 pounds. Overall length of the truck is 40 inches. Weight is 1,580 lb. with the battery.

If you write maker identify as IEN - 11426

## VALVE . . Pressure regulator for air, steam, liquids, 4 port sizes

**Source: LESLIE COMPANY**
**114 Delafield Ave., Lyndhurst, N. J.**




**Bulletin 51-A**

**Bronze or steel** construction can be specified in this new Small Flow bronze reducing valve. The valve handles inlet pressure to 1,000 lb. and reduced pressure from 2 to 400 pounds. Connection sizes are ½-in. pipe. Four control port sizes range from $\frac{3}{32}$ to $\frac{3}{16}$ inch.

**Reduced pressure** is set by increasing or decreasing pressure on the main control spring in the valve bonnet. A lever equipped locking nut secures a given position. The control valve is held up to its seat against the action of the spring operated diaphragm above the stem so the flow port will close when upward pressure against the diaphragm overcomes downward pressure by the spring. The enclosed design requires no stuffing boxes or bellows seal. The metal diaphragm and the adjusting and valve springs are corrosion resistant.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11427

## Tiny parts for the DC-6 get THOROUGH check-up with FLASH-O-LENS

Small parts for the hydraulic system of the famous Douglas DC-6 are inspected for symmetry with FLASH-O-LENS — the handy device that *lights* the work and *magnifies* it.

It will pay *you* to put FLASH-O-LENS to work on your inspection jobs. Built-in bulb throws light *only* on field of vision — *not* in worker's eyes. Accurately ground lens gives sharply detailed enlargement.

Write for free descriptive literature on battery-operated and plug-in types.

**E. W. PIKE & COMPANY**
492 NORTH AVE. ELIZABETH, N. J.

If you write maker identify as IEN - 11428

## Have You Considered Air for the Following Uses?

AIR CURTAINS . . . LIQUID REMOVING
HEAT TREATING . . . SCALE BLOWING
COOLING . . . SPRAYING . . . AGITATION
TESTING . . . DRYING . . . VENTILATING
HEAT TREATING

These and other applications are described in the Spencer Turbo-Compressor Data Book No. 107-C. Yours for the asking.

THE SPENCER TURBINE COMPANY • HARTFORD 6, CONNECTICUT
SPENCER HARTFORD
466-J

If you write maker identify as IEN - 11429

with Veelos on your machines
***v-belt replacement takes up to 90% less time***

ACTUAL in-plant records prove that Veelos v-belt can be installed *and operating* in up to 1/10th the time regularly needed to do the same job using endless v-belts.

Matched sets of Veelos are quickly made up in your own stockroom or at the machine by just coupling the correct lengths for the particular drive. Even outboard bearing drives are no problem. You *never* remove these outboard bearings, because Veelos is installed by simply coupling it around the shafts and running it onto the sheaves.

Write for a copy of the Veelos Data Book. It's fully illustrated and packed with useful engineering data. We'll be glad to send a copy to you.

VEELOS THE LINK V-BELT

**MANHEIM MANUFACTURING AND BELTING CO.**
**651 Manbel Street, Manheim, Pa.**

*Adjustable to Any Length • Adaptable to Any Drive*

If you write maker identify as IEN - 11430

## SAFELY LIFTS 13.9 to 25 TONS

With reserve strength beyond its rated capacities, Koehring heavy-duty 304 safely lifts 13.9 tons on crawlers, has 35 to 75-ft. boom. As a rubber-tired truck or cruiser crane it lifts up 25 tons, has max. 110-ft. boom with jib. Big clutch and spring-loaded brake automatically hold boom with max. load. Other sizes to 79½ tons.

**KOEHRING CO.**
Milwaukee 16, Wis.

*If you write maker identify as* IEN - 11431

# this time-study saves you money!

**BUSINESSES SAVE HOURS EACH DAY**

**you save 16 seconds every time you press a button**

Actual time studies taken in hundreds of businesses show that an average of 18 seconds is required to make an "inside" speech contact through the switchboard. With *your own* AMPLICALL "clear line" *internal* communication system—you get *2-second speech contact* within and between departments. AMPLICALL frees busy switchboards for important outside calls—keeps personnel *on the job*, keeps talk terse—saves hours each day for the average business. AMPLICALL saves you money—pays for itself. There is a system to fit your special needs. Get the full facts today!

ELECTRONIC **AMPLICALL** INTERCOMMUNICATION

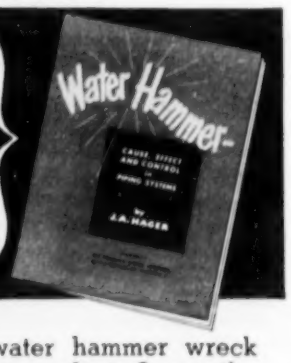
**SEE YOUR PHONE BOOK**
For your nearest AMPLICALL specialist, look under "Intercommunication" in your classified phone directory—or write direct for full information.

**RAULAND-BORG CORPORATION**
3523-K Addison Street, Chicago 19, Illinois

*If you write maker identify as* IEN - 11432

# WILLIAMS-HAGER FLANGED *Silent* CHECK VALVES WILL ELIMINATE COSTLY, DANGEROUS WATER HAMMER IN YOUR PLANT

*Get the Facts!*
WRITE FOR YOUR COPY OF THIS NEW BULLETIN *TODAY!*




Don't let dangerous water hammer wreck the piping system in your plant. Learn the cause, effect and control of this costly nuisance.

CHECK VALVES

**THE WILLIAMS GAUGE CO., INC.**
2900 Pennsylvania Avenue, Pittsburgh 33, Pa.

*If you write maker identify as* IEN - 11433

# PRODUCT-PROVED WIRE

CONTINENTAL STEEL CORP. STEEL CONTINENTAL WIRE KOKOMO, IND.

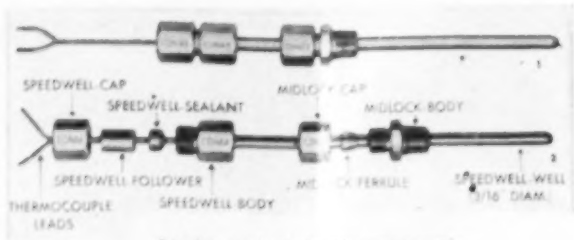
● The worth of Continental wire has been *proved* in the products of hundreds of leading manufacturers. Continental wire is uniform in temper, uniform in coating. Whether your need is for a rust-resistant wire that can stand up under difficult forming operations . . . or for a shaped wire to provide smarter-looking, longer-lasting trim . . . Continental wire can help you build a better, more profitable product. Write Continental at Kokomo.

**CONTINENTAL STEEL CORPORATION**

*If you write maker identify as* IEN - 11434

## THERMOCOUPLE . . Protection tube and gland to seal and mount in place

**Source: CONAX CORPORATION**
**4513-17 Main St., Buffalo 21, N. Y.**




**Locks and seals thermocouple**

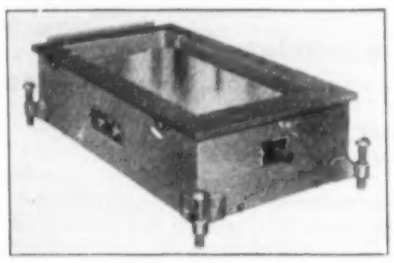
**Stainless steel,** $\frac{3}{16}$ in. in diameter by 0.035 in. in wall thickness, is employed in the protecting well in this new thermocouple assembly. Mounting is in the gland assembly previously described IEN-2149-51. The gland seals and provides a means to mount the protecting tube. It also can be taken apart and reassembled quickly for thermocouple change.

**Various lengths** are available with straight or 90-deg. well. The end fitting is ½-in. hexagon by 1⅛ in. in length. The main fitting, in which the well mounts, is also ½-in. hexagon by 1⅛ in. in length. It is fitted with a ⅛-in. pipe thread.

*If you write maker identify as* IEN - 11435

## MELTING . . Electric pot to dip solder printed electric circuits

**Source: DEE ELECTRIC CO.**
**1103 N. Paulina St., Chicago 22, Ill.**



**Uniform heat**

**Temperature range** is 300 to 600 deg. F. for this new Model-8S solder melting pot for printed circuit work. Maximum effective depth is ⅝ inch. Work area measures 10¾ by 5½ inches. The unit operates on 110-volt ac. with 800-watt input.

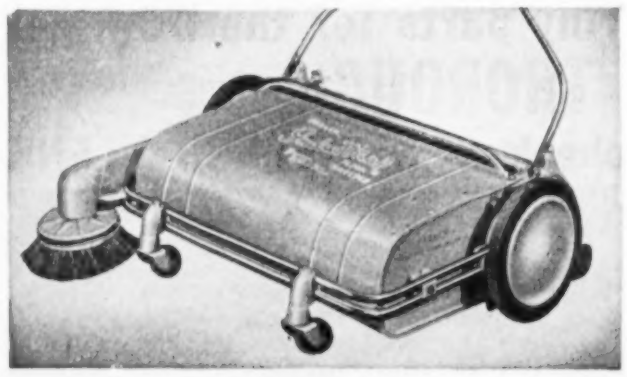
**A copper panel,** plated to prevent alloying action of the solder, is immersed ⅝ in. below the surface of the solder to operate as a thermal condenser. The plate discharges heat into chilled areas to assure even distribution to all points in the control area. A thermostat, connected to the panel, responds to temperature variations to control operation of the heating element.

*If you write maker identify as* IEN - 11436

**Pemco** Corporation, 5600 Eastern Ave., Baltimore 24, Md., has signed a license agreement with DuPont to manufacture the porcelain enameling frit developed by DuPont to apply on aluminum. The company is prepared to advise with manufacturers and processors on selection and installation of the special equipment required for the operation. It warns that aluminum requires separate equipment and that the two types of frit, for aluminum and for steel, must be kept separate as they have an adverse effect on each other. Bulletins 2000 and 2001 are available on request.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11437



# Pay Dirt

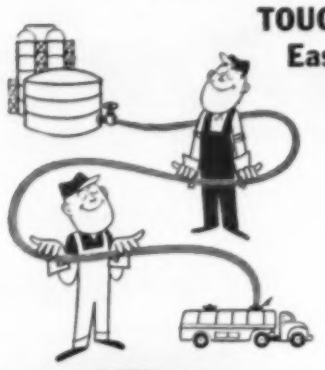
Sweep your floors the Parker Sweeper way and floor dirt becomes pay dirt. A Parker Sweeper is 400% faster than inefficient pushbrooms. It reduces "taken-for-granted" sweeping expenses by surprising amounts. Sweeps and collects in one operation. Easily pushed . . . easily emptied. Ideal for all businesses from small garage to large factory.

Full details in big descriptive bulletin. Write **PARKER SWEEPER COMPANY, 410 BECHTLE AVE., SPRINGFIELD, OHIO.**

**PARKER FLOOR SWEEPERS**
*Manual and Motorized Models*

*If you write maker identify as* IEN - 11438

## TOUGHNESS that's Easy to Handle



**Quaker**
**INDUSTRIAL HOSE**

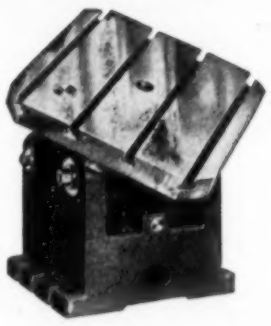
Toughness! Combined with flexibility and light weight! Whatever the job, whatever the liquid, gas or substance—Quaker has a hose that's exactly right for it! Always as light in weight as working conditions will permit, always easy to handle and no trouble to use! Engineered to withstand any "punishment" it's called on to take, Quaker hose resists high pressures, twisting, bending, deteriorating liquids and abrasion. For long wear, low upkeep, top value—insist on Quaker!

*Write for name of nearest distributor*

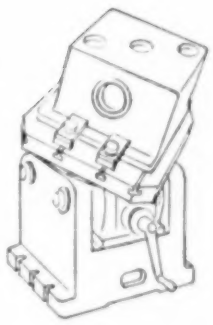
**QUAKER RUBBER CORPORATION**
**DIVISION OF H. K. PORTER COMPANY, INC.**
OF PITTSBURGH
Dept. E, Philadelphia 24, Pa.
Branches in Principal Cities

*If you write maker identify as* IEN - 11439

# universal tables



**save up to 50% of set up time on radials and boring mills**



With one set up on Cincinnati Gilbert universal tables, you can drill at any angle up to 90° on five sides of a cube. Special feature: four-point support of the work in the lowered position takes strain off the worm, provides greatest possible rigidity of the work, best insurance of accuracy. Table sizes: 22" and 27" square. Height: 22". Four ¾" tee slots. Write for Bulletin **850**.

**THE CINNATI GILBERT MACHINE TOOL COMPANY**
3366 BEEKMAN ST. • CINCINNATI 23, OHIO

RADIALS
BORING MILLS
ACCESSORIES

*If you write maker identify as* IEN - 11440

## Now a Better Welder

**AT A LOWER PRICE**

***Sureweld*® A-C Shop Welder improved in many ways**

The Sureweld A-C Shop Welder, for general utility welding, has always been outstanding for the remarkable arc stability it has provided, the desirable welding characteristics at all current levels and the operator's control of current value.

And now this welder has been greatly improved. The exclusive Sureweld 4-coil transformer has been positioned horizontally for even better ventilation and cool operation even with higher output. Primary insulation and secondary windings provide high dielectric strength for peak performance at high heats. Operator's convenience has been increased by side-mounting the control handle next to the high-visibility calibrated scale. Other advances markedly decrease KVA input and increase ease of operation, dependability and portability. Best of all, the improved design has resulted in lower prices.

***Send for descriptive bulletin NH-101 today.***

Copyright 1953, National Cylinder Gas Company

**NCG NATIONAL CYLINDER GAS COMPANY**
840 N. Michigan Avenue, Chicago 11, Ill.

*If you write maker identify as* **IEN - 11441**

**New! Low-Cost! – Wide-Range!**

# VARIABLE Speed Sheaves

**Easily Attached to Any Machine**

**1/15 TO 15 HP.**
**RATIOS UP TO 8:1**

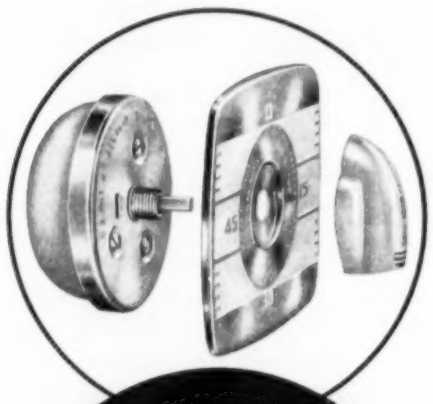
● **Simple, sturdy Speed Selector Sheaves are applied to any machine in only a few minutes . . . giving you wide-range speed control at extremely low cost. You get wide speed variations with standard V-belts, since two variable pitch sheaves are used. Eliminates bulky sliding motor bases, movable jackshafts and wide, high-cost special V-belts.**

- **Standard V-belts**
- **Automatic belt alignment**
- **Fixed shaft centers**
- **LOW COST**

*Write* **FOR FREE BULLETIN**

**SPEED SELECTOR INC.**
**118-A Noble Court • Cleveland 13, Ohio**

*If you write maker identify as* **IEN - 11442**



# MARK-TIME
## "2000" Bell Timer
**a favorite for dependability & economy!**

Hundreds of the country's leading manufacturers of ranges, washing machines and similar appliances have standardized on "2000" . . . because no other bell timer gives such rugged dependability at so little cost!

"2000" is perfect for any device or appliance where a clear, resonant bell signal is required at the end of a pre-set, measured time interval.

Durability is built into "2000" . . . its simple, trouble-proof operation has earned its outstanding popularity.

Available with a wide variety of modern dials and knobs. Write today for full details and prices.

**SPECIFICATIONS**

Standard timing ranges from 60 seconds to 5 hours. Normally supplied with center stud mounting. Other mountings available on request. May be supplied with winding shafts of various types.

Manufactured and sold in Canada by SPERRY GYROSCOPE OTTAWA, Limited 3 Hamilton St., Ottawa, Ontario, Canada

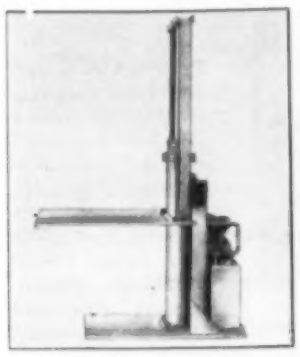
MARK-TIME

**M. H. RHODES, INC.**
**HARTFORD, CONNECTICUT**

*If you write maker identify as* **IEN - 11444**

## ELEVATOR . . Semi-portable assembly to handle materials at a machine

**Source: GLOBE HOIST CO.**
**Queen St. at E. Mermaid Lane, Philadelphia 18, Pa.**



**Rates 750 pounds**

**Oil-lift** machine feed table is a new semi-portable unit, as illustrated, with a motor driven hydraulic pump and reservoir. A load is positioned on a 3 by 3-ft. roller bearing steel surfaced table for elevation through 37 in. under operator control at a push button station.

The **operator** can "inch" the material upward to keep its top level with a machine table. He can let the table down to receive another load. Various assemblies in the line have load capacities subject to order to a maximum of 3 ton.

*If you write maker identify as* **IEN - 11445**

## SAWING . . Circular blade, carbide tipped for metals, plastics

**Source: RADIAL CUTTER MFG. CORP.**
**829-33 Bond St., Elizabeth, N. J.**

**List ranges**
**$95 to $190**

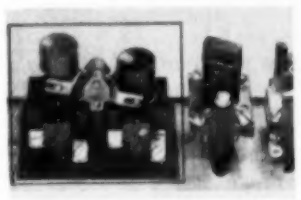
**Heat treated** steel body is fitted with carbide tipped teeth permanently brazed in place in manufacture of the company's new Radialloy-tipped circular saw blade for non-ferrous metals, plastics, wood. **The body** is designed to avoid vibration. The tips are precision ground.

**Five sizes** range from 8 to 16 in. in diameter. The smallest is available with 30, 40 or 60 teeth. The largest is supplied with 30 to 80 teeth. The company maintains a resharpening and repair service for all makes of carbide tipped saws as well as for its own.

*If you write maker identify as* **IEN - 11446**

## SWITCH . . Double push button for maintained contact service

**Source: WESTINGHOUSE ELECTRIC CO.**
**511 Wood St., Dept. IEN, Rm. 1110, Pittsburgh 30, Pa.**



**Over center toggle**

**Two 2-point** push button units, each with one normally open and one normally closed contact, comprise this new switch assembly. Contact rating is 10 amp. on continuous duty, 50 amp. maximum interrupting on 110-volt ac, or 2 amp. maximum interrupting on 110-volt dc. The switch can be used for 3-point applications or for 2-point service, as well as for normal 4-point operation.

**A snap-acting** over-center toggle mechanically interlocks the buttons so one is down when the other is up in a positive action. Seven button colors include green, yellow, blue, brown, gray, red, black. Dimensions are about 3 by 3 by 4 inches.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* **IEN - 11447**

**WRITE YOUR OWN TICKET FOR**

# Quality Wire!

**SPECIFY SENECA FOR WIDE RANGE OF USES**

- ☐ Aircraft
- ☐ Armature
- ☐ Cable
- ☐ Car Seal
- ☐ Cotter Pin
- ☐ Curtain Spring
- ☐ Flexible Shaft
- ☐ Glass Netting
- ☐ Hair Pin
- ☐ Lock Spring
- ☐ Piston Ring
- ☐ Plow Steel
- ☐ Ring Traveler
- ☐ Rope
- ☐ Spark Coil Core
- ☐ Spring
- ☐ Stapling
- ☐ Stitching
- ☐ Weaving

Whatever your needs in wire . . . specify SENECA for *top quality* and *uniformity!* High or low carbon steel wire . . . aluminum . . . bronze. Sizes No. 40 W & M (.007) and larger . . . round, half round, oval, square, flat, straightened and cut. Finishes—bright, soft annealed, coppered, liquor, tinned, bright galvanized, oil tempered, enameled. Write about your requirements.

**SENECA WIRE & MANUFACTURING COMPANY, FOSTORIA, OHIO**
Representatives in practically All Principal Cities

*If you write maker identify as* **IEN - 11448**

## SR-4® DEVICES IN INDUSTRY... USES UNLIMITED

**THE PROBLEM:** In the static testing of rocket fuel systems, Aberdeen Proving Ground needed a transducer which could respond to the high pressures and frequencies encountered.

**THE BALDWIN SOLUTION:** To meet this need, Baldwin designed and manufactured 100 special SR-4 Pressure Cells with the necessary high accuracy and high frequency response.

These transducers give Aberdeen these advantages:

1. **High Accuracy**—pressure versus voltage outputs are linear within ¼ of 1% and calibration (span) is held within ½ of 1%.
2. **High Pressures**—capacities up to 20,000 psi.
3. **Limitless Frequency Response**—attached piping or vessel reaches its frequency response limit before the pressure cell reaches its limit.
4. **Versatility**—these SR-4 Pressure Cells are all interchangeable so that they may work into the same instruments. They also work easily into an oscilloscope and can be used to operate a potentiometer.

The uses for Baldwin SR-4 devices in industry are *unlimited* . . . measuring load, pressure or torque more accurately and economically. Wide range of standard capacities. Please write Dept. 3213.

20,000 p.s.i. high frequency pressure cell. Length 5½", diameter 2", weight 1 lb.

**TESTING HEADQUARTERS**

**BALDWIN-LIMA-HAMILTON**
Philadelphia 42, Pa. • Offices in Principal Cities

*If you write maker identify as* **IEN - 11449**

# GET RID OF WIRES

and get foolproof connections in

- RADIOS
- AMPLIFIERS
- SWITCHBOARDS
- METERS

**Print your circuits with Du Pont Conductive Coatings—reduce costs and time**

Highly conductive coatings of low resistance are easily obtained by spray, brush, dip or stencil to metals and non-conductors. These coatings can be used to make economical, lightweight, compact high-voltage capacitors; static shields to replace usual cans and foils; resistors and solder seals. For more information, send for Bulletin CP 2-1248. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Wilmington 98, Del.

**DU PONT ELECTROCHEMICALS**

DU PONT

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

*If you write maker identify as* **IEN - 11450**

Over 85% of the torque wrenches used in industry are

# STURTEVANT TORQUE WRENCHES

*Read by Sight, Sound or Feel*

- **Permanently Accurate**
- **Practically Indestructible**
- **Faster—Easier to use**
- **Automatic Release**
- **All Capacities**

*in inch ounces*
*...inch pounds*
*...foot pounds*
*(All sizes from 0-6000 ft. lbs.)*

*Every manufacturer, design and production man should have this valuable data. Sent upon request.*

P.A. STURTEVANT CO.
ADDISON QUALITY ILLINOIS

If you write maker identify as IEN - 11451

# Exactly how much weight do you throw?

Ten inch ounces or 2000 ft. lbs.? Whatever it is, it pays to know when tightening nuts, bolts, screws, or studs. And with Apco Mossberg Torque Wrenches you can know . . . instantly and precisely!

Like no other torque wrench of comparable size or style, an Apco Wrench measures the exact final tension on precision fasteners with the slightest pressure on the handle. Your dial readings are instantaneous and unerringly accurate . . . there are no springs or intricate parts to get out of order. Your work is made easier . . . large, quick-vision numerals and narrow heads simplify measurements in awkward places. Best of all, with Apco there's a wrench for every job in the shop — a complete range of sizes, from 280 inch grams to 2000 ft. pounds.

It pays to standardize with Apco Mossberg Torque Tools for Industry. Write today for complete details.

**APCO MOSSBERG CO.**
ATTLEBORO, MASS.

If you write maker identify as IEN - 11452

**test it for moisture protection . . .**

send for sample

**CHASE PROTEX BAGS**

*Here's a special bag* to meet a special problem—complete protection of your product from moisture in shipping or storage. Chase Protex bags are waterproof—made of TOPMILL burlap or cotton laminated with waterproof adhesive to a crinkled kraft paper liner. No porous sewing holes—center seams are cemented, bottoms are taped for additional moistureproof protection. Dry seal closure is pre-formed for quick, accurate sealing—no sewing machine necessary.

Chase Protex bags are available in sizes to fit your needs—send now for your sample price and quotations.

SINCE 1847

**CHASE BAG COMPANY**

309 WEST JACKSON BLVD., CHICAGO 6, ILLINOIS
30 Branches and Sales Offices strategically located

If you write maker identify as IEN - 11453

**STOP Slipping! SAVE Power! SAVE Belts!**

**THE CLING-SURFACE "SLACK-BELT" WAY!**

**FREE SAMPLE**

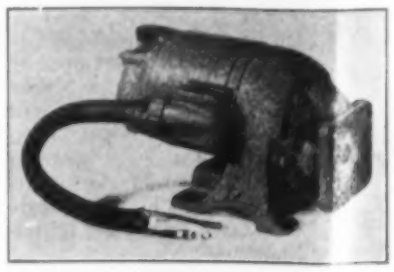
- Makes and keeps belts soft and pliable
- *Pliable* belt "clings" to "surface" of pulley
- Dissolves hard "glaze" that makes belts slip
- *Only* belt preservative that has met and passed U. S. Government Tests and Requirements
- Sold with money-back guarantee since 1896

Cling-Surface Company, Inc.
1044 Niagara Street • Buffalo, New York
Please send me FREE sample can of Cling-Surface "50" Belt Preservative
Name .....
Title .....
Company .....
City ..... State .....

If you write maker identify as IEN - 11454

## MOTOR . . Three phase, 400 cycle ac., for aircraft duty, has geared head

Source: U. S. ELECTRICAL MOTORS INC.
Box 2058-A, Terminal Annex, Los Angeles 54, Calif.

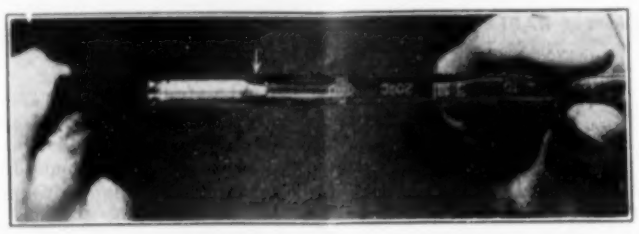


For continuous duty

**Type GA** is a new ½-hp. open self-ventilated electric motor with an integral geared head for output speed to specification between 1,500 and 5,000 rpm. The design meets USAF specification 32590. Thermal overload protection is included in the assembly which also is equipped with an integral cooling fan, hardened shaved helical gears, internal spline take-off shaft, AN mounting pad.

If you write maker identify as IEN - 11455

**New pipette** carries a built-in restriction near one end to act as a stop for the conventional cotton plug that protects laboratory workers and prevents contamination of the solu-



tions and cultures being handled. The restriction retains the plug so it cannot slip into the pipette body. Two sizes, both 350 mm. in length, are 5 and 10 ml. with 0.1 ml. divisions. They are made of flint glass by Owens-Corning Glass Co., Kimble Glass Div., 538 Ohio Bank Bldg., Toledo 1, Ohio.

If you write maker identify as IEN - 11456

## PROTECTING . . Fabric glove is reinforced with plastic dots

Source: RIEGEL TEXTILE CO.
P. O. Box 170-A, New York 17, N. Y.

Reversible

**New design** of the company's Plastic-Dot work glove permits use of one glove on either hand so it is not necessary to keep matched pairs. When a glove is worn on one side it can be shifted from one hand to the other to present a new work surface. The glove is made of cotton flannel fabric in which tiny plastic dots are imbedded permanently. These dots protect the fabric against wear but do not interfere with ventilation or flexibility. The design represents further development of the glove previously described IEN-7458-52.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11457

**The Case of the PHANTOM TRACTOR**

**. . . that pulls in real profit!**

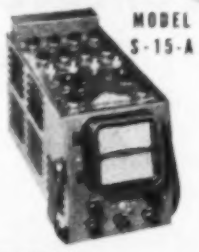
Ask any operator why he equips his tractor with a Hyster Towing Winch. He'll tell you, "It's like having a second tractor up ahead all the time—ready to help you when you need it most". And that's another way of saying that a Hyster Towing Winch increases tractor pull by as much as 92% over drawbar pull.

Call your Caterpillar-Hyster Dealer today for full details or write:

**HYSTER COMPANY** 2916 N. E. Clackamas . . Portland 8, Oregon
1816 North Adams Street . . Peoria 1, Illinois

If you write maker identify as IEN - 11458

**THE TWIN TUBE POCKETSCOPE** BY WATERMAN



MODEL S-15-A

*Wt. 16¼ lbs.*
*12" x 6" x 7"*

**A new concept in multiple trace oscilloscopy made possible by Waterman developed RAYONIC rectangular cathode ray tube, providing for the first time, optional screen characteristics in each channel. S-15-A is a portable twin tube, high sensitivity oscilloscope, with two independent vertical as well as horizontal channels. A "must" for investigation of electronic circuits in industry, school, or laboratory.**

Vertical channels: 10mv rms/inch, with response within —2DB from DC to 200kc, with pulse rise of 1.8μs. Horizontal channels: 1v rms/inch within —2DB from DC to 150kc, with pulse rise of 3μs. Non-frequency discriminating attenuators and gain controls, with internal calibration of traces. Repetitive or trigger time base, with linearization, from ½cps to 50kc, with ± sync. or trigger. Mu metal shield. Filter graph screen. And a host of other features.

**WATERMAN PRODUCTS CO., INC.** PHILADELPHIA 25, PA.
CABLE ADDRESS: POKETSCOPE

WATERMAN PRODUCTS INCLUDE:

| | | |
|---|---|---|
| S-4-A | SAR | PULSESCOPE |
| S-5-A | LAB | PULSESCOPE |
| S-10-B | GENERAL | POCKETSCOPE |
| S-11-A | INDUSTRIAL | POCKETSCOPE |
| S-14-A | HIGH GAIN | POCKETSCOPE |
| S-14-B | WIDE BAND | POCKETSCOPE |

Also RAKSCOPES, LINEAR AMPLIFIERS, RAYONIC TUBES and other equipment

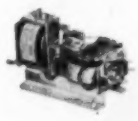
WATERMAN PRODUCTS

If you write maker identify as IEN - 11459

**SOUNDLY ENGINEERED . . .**

**PRECISION-BUILT *Leach* RELAYS . . .**

not only meet, but surpass the most stringent requirements!



Always the goal at *Leach* has been to design and manufacture relays that achieve the maximum degree of performance.

Nearly four decades of leadership in providing a complete line of relays for a multitude of applications.

**FOR BETTER CONTROLS THROUGH BETTER RELAYS —*Specify Leach***

**LEACH RELAY CO.**
5915 AVALON BOULEVARD, LOS ANGELES 3, CALIFORNIA
Representatives in Principal Cities of U. S. and Canada

If you write maker identify as IEN - 11460

**BEST DEFENSE AGAINST CORROSION**

**Start with TYGORUST**

***"the no-prep vinyl primer"***

- minimizes surface preparation
- brushes easily—sprays beautifully
- dries hard in 5-15 minutes
- covers up to 500-600 sq. ft./gal.
- goes under any type finish
- adheres to wet or dry rusted steel, to wood, to concrete, or to previously painted surfaces.

**Finish with TYGON "Series TP" PAINT**

***"the vinyl finish of maximum protection"***

- easily applied by brush or spray
- fast drying and non-oxiding
- fully flexible and chip-resistant
- non-flammable when dry
- easy to clean and long lasting
- resists fumes and spillage of acid, alkalies, oils, greases and water.

*Write for full details—ask for Bulletin 720!*

360 C

**U. S. STONEWARE CO.**
AKRON 9, OHIO

If you write maker identify as IEN - 11461

# THE 1-2 SPLICE

**HOW TO MAKE THE WORLD'S SAFEST, MOST COMPACT CONNECTION**

**(1) FASTEN WIRES WITH "SCOTCHLOK" (2) INSULATE WITH "SCOTCH" NO. 33**

Twist on "Scotchlok"—the toughest, tightest-gripping spring connectors ever made—and snap off winding stem. Compact, never shakes loose. Insulate as shown with "Scotch" Plastic Electrical Tape No. 33. Only .007 inch thick with 10,000 volt dielectric strength. Order today!

The term "Scotch" and the plaid design are registered trademarks for the more than 200 pressure-sensitive adhesive tapes made in U.S.A. by **Minnesota Mining & Mfg. Co., St. Paul 6, Minnesota.**

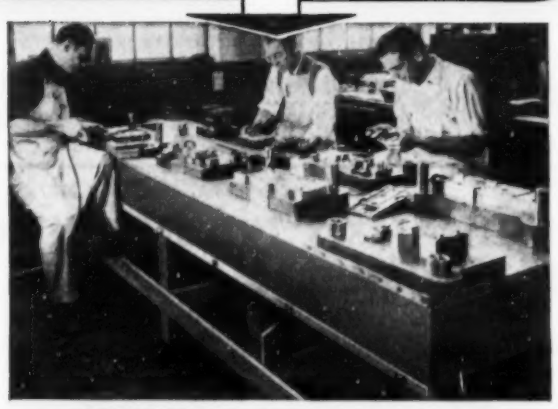
SCOTCH BRAND Electrical Insulating Products

If you write maker identify as IEN - 11462

# FACTORIES need MORE Electrical OUTLETS!

**PLUGMOLD 2000**
***with Snapicoil***

**Is the FASTER, EASIER, CHEAPER way to provide multiple convenience outlets!**



**PLUGMOLD makes work benches more efficient!**

This easy-to-install multi-outlet system gives you outlets right at the spot where they're needed — Duplex or NEMA grounded outlets every 30 inches in a continuous run. Closer spacings available if needed; also available in 3-foot and 6-foot factory-wired sections.

PLUGMOLD 2000 eliminates the hazards of a tangle of extension cords — dangerous to workers and to the work! With a PLUGMOLD outlet right at the point of use, you can use shorter cords for electrical tools.

***Write today for the free Plugmold 2000 book!***

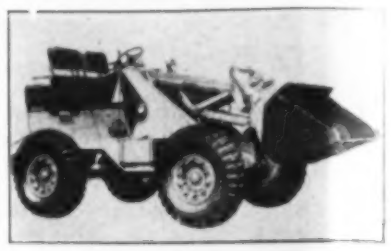
**WIREMOLD**
Makers of
PLUGMOLD—multi-outlet systems
WIREMOLD—electrical raceways
PANCAKE—overfloor raceways

**THE WIREMOLD COMPANY**
**HARTFORD 10, CONNECTICUT**

If you write maker identify as IEN - 11464

## HANDLING . . Power shovel, 1½ yd. bucket, rates 6,000 pounds

**Source: BAKER-LULL CORPORATION**
**312-16 W. 90th St., Minneapolis 20, Minn.**



**Maintains traction**

**Power steering,** four-wheel drive, parallelogram loader action and a 100-in. stable wheel base characterize the construction of this new Shoveloader. Underclearance is sufficient to permit operation of the machine in extreme conditions of mud, snow, sand and uneven ground. The rear axle is mounted to oscillate through 23 in. to keep all four wheels in contact with the ground.

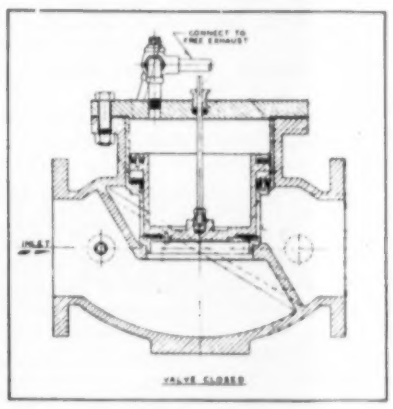
**Travel** is controlled by a transmission providing five speeds in both directions. A shuttle gear permits quick change of direction when working between a stock pile and a truck. The operator rides in seated position at the rear and above the engine where he is removed from contact with the moving parts and has a clear view ahead.

**Power** is supplied by a 6-cylinder Hercules gasoline engine or, to specification, by a 77-hp. diesel. The loader mechanism is driven by 1,200-lb. hydraulic pressure developed at a gear type pump connected to the engine. Double acting cylinders permit the operator to shake the shovel. The linkage design permits crowding action for full capacity loading and "down crowd" to 25 in. below the tractor level. Load lift forks and a bulldozer blade can be specified.

If you write maker identify as IEN - 11465

## VALVE . . Piston operated by up-stream pressure, 2 to 36 inches

**Source: GOLDEN ANDERSON VALVE SPECIALTY CO.**
**2079 Keenan Bldg., Pittsburgh 22, Pa.**




**Bulletin W-8**

**Cushioned Flowtrol** trade names a new valve in which a bronze piston operates in a bronze cylinder sleeve that extends downward in the cast iron body to also form the valve seat. A pipe connection leads from the up-stream side of the valve through a four-way pilot cock to the space above the piston.

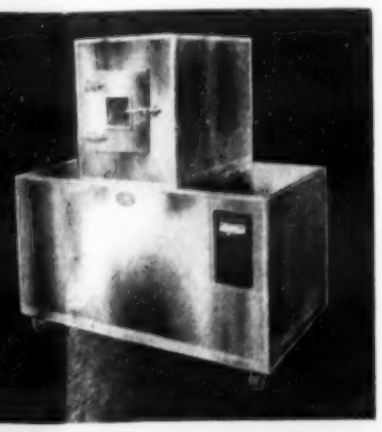
**Opening** the cock releases pressure above the piston so line pressure opens the valve. Closing the cock blocks escape of the line pressure which builds up above the piston and forces it to close since the area above is twice that below.

**The valve** is made in fourteen sizes from 2 to 36 inches. It rates 15 to 400-lb. pressure to handle water, non-corrosive liquids, oil, air. The 6-in. unit, of the design shown in the illustration, measures 18 in. face to face and 18¾ in. from bottom to top. The flanges are 125-lb. standard.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11466

**WEBBER**
TRADE MARK REGISTERED
**TEST CHAMBER**
WITH
HIGH-TEMPERATURE,
LOW-TEMPERATURE
AND HUMIDITY



★ This Webber test unit, designed for production and experimental testing, has a temperature range from +250°F., to −100°F. The pull-down to −100°F., is achieved in 45 minutes, and can be cycled from −100°F., to +250°F., in 30 minutes. 95% relative humidity is provided at temperatures between 75°F., and 95°F. Vacuum equipment can be added to simulate high altitudes. The test chamber, provided with a moisture-proof light for illumination, is 4½ cubic feet, 20 inches high, 20 inches wide, 20 inches deep. High and low temperatures are governed by a temperature controller with scale range from −200°F., to +400°F., with a 3 degree control point differential, 1½ degrees plus and minus. The humidity is regulated by a wet and dry bulb controller. Unit size is 60 long, 45" wide, 74" high. Apertures in left side of cabinet provide for electrical cables to energize equipment being tested. Webber offers a complete line of test units for various applications.

***Write for more complete information***

INDUSTRIAL TESTING DIVISION
WEBBER MANUFACTURING COMPANY, INC.
(Formerly Webber Appliance Co., Inc.)
2746 MADISON AVENUE, INDIANAPOLIS 3, INDIANA

If you write maker identify as IEN - 11467

# Boost Your Machine Output With This G-E Time Meter

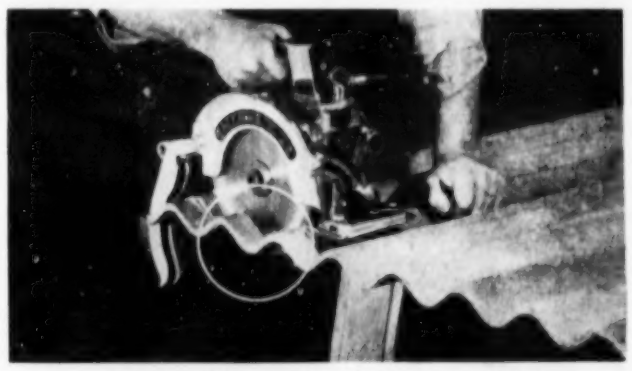
**KT TIME METERS . . .**

- **Record operating time in hours, tenths of hours, or minutes.**
- **Reveal exactly how much work your machines are doing.**
- **Enable you to reschedule work and plan repair schedules more efficiently.**
- **Are easily installed; portable, panel, and conduit models available.**

**Contact Your Nearest G-E Sales Office. General Electric Co., Schenectady 5, New York.** 603-136

**GENERAL ELECTRIC**

If you write maker identify as IEN - 11468



**Cost-cutters for cutting-off!**
**Norton wheels add the**

# "TOUCH OF GOLD"

With Norton cut-off wheels you're sure of the fast, safe, clean-cutting performance that adds the money-saving "Touch of Gold" to every job.

Norton cut-off wheels are made with resinoid, rubber and shellac bonds, in ALUNDUM* (aluminum oxide) abrasive and CRYSTOLON* (silicon carbide) abrasive and in all sizes. You can count on them for the easy handling and exceptional breakage-resistance that mean happier operators and higher production.

**Ask your Norton Distributor** about the correct Norton cut-off wheels for your materials and machines. Or write to NORTON COMPANY, Worcester 6, Mass. Distributors in all principal cities. *Export:* Norton Behr-Manning Overseas Incorporated, Worcester 6, Mass.

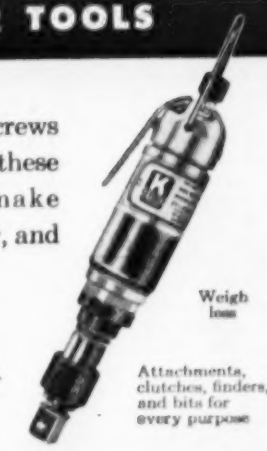
*Trade-Marks Reg. U. S. Pat. Off. and Foreign Countries

**NORTON ABRASIVES**
*Making better products . . . to make other products better*

If you write maker identify as IEN - 11469

# *Save Time—Speed Assembly* WITH KELLER AIR TOOLS

Wherever there are screws to drive or nuts to set, these lightweight tools make work easier and faster, and reduce labor costs.



Consume less air
Reduce operator fatigue
Interchangeable parts
Weigh less
Attachments, clutches, finders, and bits for every purpose

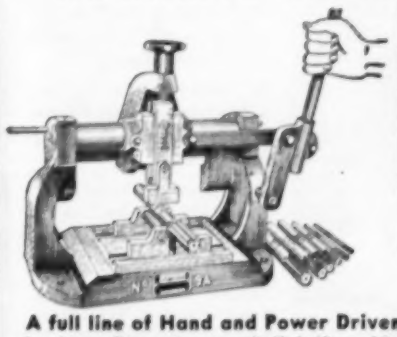
KELLER TOOLS

*Send for* **illustrated descriptive bulletin and detailed information**

**Keller Tool Company**
**GRAND HAVEN, MICHIGAN**

If you write maker identify as IEN - 11470

# WHY WAIT FOR BIG MARKING MACHINES



WHEN THESE HANDY BENCH MODELS WILL DO YOUR WORK — CARRIED IN STOCK

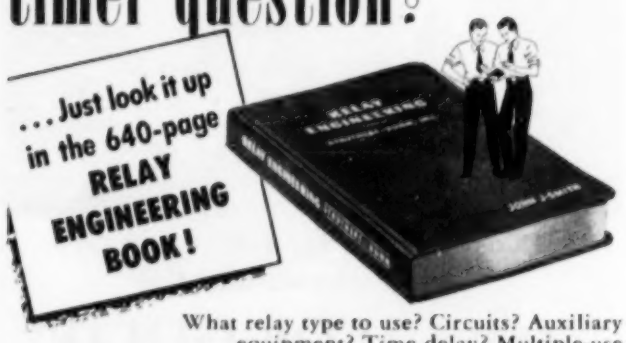
**A full line of Hand and Power Driven Marking, Numbering, Stamping and Printing Machines—always available for prompt delivery.**

**ACROMARK**

**THE ACROMARK COMPANY**
7 MORRELL ST., ELIZABETH, NEW JERSEY

If you write maker identify as IEN - 11471

# What's your relay or timer question?




What relay type to use? Circuits? Auxiliary equipment? Time delay? Multiple-use control lines? Sequence operation? Your questions on these and dozens of other relay-timer subjects are fully answered in the famous Struthers-Dunn Relay Engineering Book. Pocket size. Over 18,000 in use. Now in 6th printing. PRICE $3.00.

**STRUTHERS-DUNN**

5,348 Relay Types

**STRUTHERS-DUNN, INC., 150 N. 13th St., Phila. 7, Pa.**

BALTIMORE • BOSTON • BUFFALO • CHARLOTTE • CHICAGO • CINCINNATI
CLEVELAND • DALLAS • DETROIT • KANSAS CITY • LOS ANGELES
MINNEAPOLIS • MONTREAL • NEW ORLEANS • NEW YORK • PITTSBURGH
ST. LOUIS • SAN FRANCISCO • SEATTLE • SYRACUSE • TORONTO

If you write maker identify as IEN - 11472

# SLOW SPEED VERTICAL DRIVES FOR EVERY JOB...

Hygrade Drives

Hygrade with Extended Shaft

Line-O-Power Right Angle

Foote Bros.-Louis Allis Gearmotors

Worm-Helical Gear Drives

If you have an application requiring vertical drives to operate at slow speed, you will find a complete line of enclosed vertical drives at Foote Bros. These drives are newly engineered with precision generated gearing backed by advanced engineering, new techniques in manufacture and better control of material. May be had with standard output shaft or with extended shaft. Mail the coupon for information.

Foote Bros. Gear and Machine Corporation
Dept. IEN, 4545 So. Western Blvd.
Chicago 9, Illinois

Please send me information on Foote Bros. Vertical Drives.

Name.....

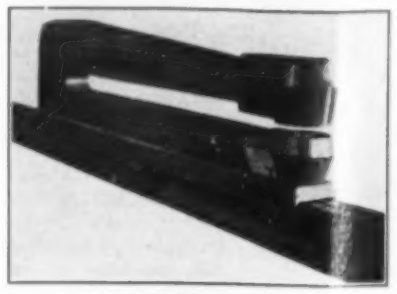
Address.....

City.....State.....

If you write maker identify as IEN - 11473

## GAGE . . Electronic equipment reads thickness in a moving strip

**Source: INDUSTRIAL NUCLEONICS CORP.**
**1203-7 Chesapeake Ave., Columbus 12, Ohio**



Bulletin R-52

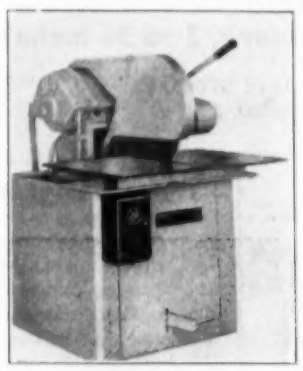
**New mounting** has been designed for the AccuRay radiation gage, previously described IEN-1175-52. It simplifies installation on production lines and provides quick access for servicing. The tapered bracket, available in throat depth to 160 in., is strong and resistant to vibration and shock in service.

**Radioactive material,** enclosed in a capsule, is mounted in the head below the work to direct radiation upward through the work to a detector on the opposite face. This detector measures the amount of radiation that penetrates the work and transmits it through amplifying equipment to an electronic strip chart recorder. A direct reading is provided of weight or thickness, without physical contact with the work, in materials such as rubber, plastics, paper.

If you write maker identify as IEN - 11474

## CUTTING . . Abrasive machine 20 in. disc, converts for free hand use

**Source: HENRY H. WISE COMPANY**
**943-47 Wilshire Blvd., Los Angeles 17, Calif.**



Utility design

**New assembly** of the Wise cutoff machine permits removal of the head operating lever, locking the head in set position and addition of a work table on which castings can be moved in free hand manner to cut off gates and risers. The lever can be replaced, the head released and the table removed to reconvert the machine to standard operation on cutting tube, shapes and bar stock.

**Two sizes** employ 7½ and 15-hp. motors to drive 18 and 20-in. abrasive discs. The company maintains a stock of the discs for immediate shipment including the No. 463 XX nylon reinforced disc for gates and risers. A guard covers the disc before a cut starts. A foot operated vise holds tube, shapes and bar stock.

If you write maker identify as IEN - 11475

**Flow reversal** through the "checkers" in an open hearth furnace is now controllable automatically by new electronic equipment available from Foxboro Company, 42 Neponset Ave., Foxboro, Mass. It employs thermocouples or radiation units to initiate the change when temperature differences between the two checkers reaches a preset value or when the temperature in either checker reaches a preset maximum.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11476

**Specify GM PRECISION-ENGINEERED**

# SERVO MOTORS

**RELIABLE PERFORMANCE**
**RUGGED CONSTRUCTION**

ACTUAL SIZE

*In the operation of—*

- GUNFIRE CONTROLS
- ROCKET CONTROLS
- GUIDED MISSILES
- AIRCRAFT CONTROLS
- INDUSTRIAL CONTROLS

G-M Servo Motors can be supplied to meet rigid military specifications with regard to humidity, temperature range, vibration and altitude. Available in 2, 4 or 8 pole construction and for frequencies from 60 to 400 cycles.

Write today for complete information.

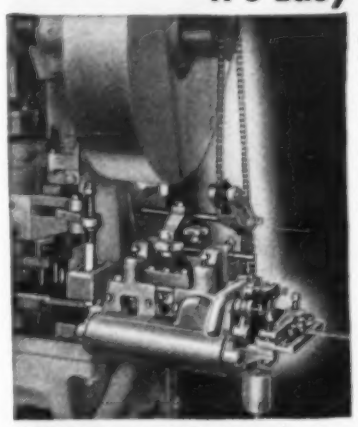
Another product of GM LABORATORIES • Inc.

4334 NORTH KNOX AVENUE, CHICAGO 41, ILLINOIS

If you write maker identify as IEN - 11477

## Get RAPID-FIRE PRODUCTION from your PUNCH PRESSES

## It's Easy with WITTEK Automatic Roll Feeds



Wittek automatic roll feeds fit all makes and sizes of punch presses — provide maximum efficiency and extreme accuracy in the high speed automatic feeding of strip stock. Made in single roll, double roll, and compound types with straighteners, in models to feed (push or pull) in any direction. Length of feed is easily adjusted to meet individual requirements.

4472

## WITTEK Reel Stands

**Simplify Handling of Coiled Stock**

Choice of standard models to facilitate handling coiled stock . . . from small, light coils to those weighing up to 800 pounds. Larger reel stands automatically center the coils — provide frictional braking action to prevent overrunning, maintain uniform coil slack.

*Write for full particulars*

**WITTEK** Manufacturing Co.
4336 W. 24th Place, Chicago 23, Illinois

Automatic ROLL FEEDS AND REEL STANDS

If you write maker identify as IEN - 11478

# Prints your product as you make it!

## Gottscho ROLAPRINTER

***Automatic Precision Printer for all materials processed in roll, sheet or strip form***

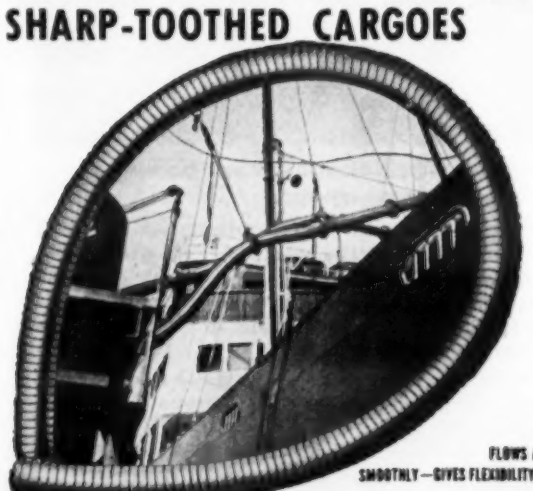
A compact printing machine designed for easy attachment to existing processing or handling equipment. Automatically prints continuous or repeated designs, trademarks, code-dates, measure marks, other legends on flexible or rigid materials . . . metal, rocklath, rubber, linoleum, screening, woven fabrics, paper, cellophane, board, etc. Uses fast-drying inks of any color, for light and dark surfaces.

***ROLAPRINTER** descriptive literature sent on request*

Gottscho **ADOLPH GOTTSCHO, INC.**
**Hillside 5, N. J.**
50TH YEAR

If you write maker identify as IEN - 11479

# PENFLEX TAKES THE BITE OUT OF SHARP-TOOTHED CARGOES



FLOWS ABRASIVE COPRA SMOOTHLY—GIVES FLEXIBILITY—RESISTS WEAR

Unloading abrasive copra often spells quick death for tubing. Jagged chunks of copra eat away ordinary metal tubing . . . tear rubber hose to shreds.

"Smooth throat" Penflex tubing—tough, smooth, flexible—flows roughest cargoes evenly . . . eliminates costly clogging and stoppages. Hose moves freely in the hold, absorbs vibration from machines, takes up ship movement due to tide changes.

For help with all your tough tubing problems, just call in your Penflex engineer. Penflex makes a complete line of 4-wall interlocked and seamless welded corrugated tubing —from ⅛" I.D. up . . . automatic barrel fillers, accessories, fittings, and pneumatic rivet passers. Write today for folder "Flexineering."

**Pennsylvania Flexible Metallic Tubing Company, Inc., 7219 Powers Lane, Phila. 42, Pa.**
**Branch Sales Offices: Boston • New York • Chicago • Houston**
**Cleveland • Los Angeles, 3414 Emery Street**

**penflex**

HEART OF INDUSTRY'S LIFE LINES

If you write maker identify as IEN - 11480

THERE IS NO ESCAPING THE DUST COLLECTING ACTION OF THIS

## TORIT DUST COLLECTOR

In this Wheelabrator fine, abrasive dust particles circulate into the upper chamber. They are *through the line* ready to do damage, when they are *sucked* by the powerful suction of this Torit No. 75 Dust Collector. It's a *mousetrap* play that's paying big dividends in cleaner working conditions and better employee relations.

When you are looking for *high scoring* production it pays to have Torit Dust Collectors on your *team*. Compact and self-contained they fit easily into production *lines*. Sturdily constructed they are *sixty minute players* with practically no time out for repairs or maintenance.

To learn how Torit Dust Collectors can help produce a *winning team* for you just write:

see our catalog in MACHINE TOOL CATALOGS or write for copy

Torit manufactures cyclone dust separators. Sizes up to 5 H.P., with or without after-filters.

**TORIT MANUFACTURING CO.**
286 Walnut Street St. Paul 2, Minn.

See our booth, No. 1641, at the NATIONAL METAL EXPOSITION

If you write maker identify as IEN - 11481

# Look To The Leader For Lubricating Devices

# GITS

### 40 Years' Leadership

Yes, for 40 years GITS has been setting the standard for industry... solving tough lubricating problems...earning the confidence of manufacturers . . . it's the reason people say, "Call GITS first".

### Low Cost

Yes, GITS oil cups can do a complete lubricating job for you . . . prolonging bearing life, reducing maintenance costs, cutting down-time, boosting production . . . and GITS oil cups cost so little.

### World's Largest Selection

Yes, only GITS can offer you such a wide range of standard stock sizes. From *just one* source you can get *all* lubrication devices in *any design* for *any purpose*.

### Consistent Top Quality

Yes, GITS is known for uniform quality in design, materials and machining . . . this means constant, dependable performance for you. Inferior products can cost you time and money. Demand the best . . . get GITS.

*Write Today for* FREE CATALOG *No. 60A Use it as your handy reference for lubricating devices*

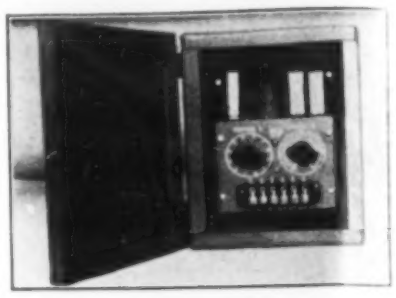
Oil Hole Covers, Oil Cups, Grease Cups, Bottle Oilers, Gauges, Gravity-Feed, Wick-Feed, Constant Level, Vibrating Rod Styles. Threaded or Drive-Type, Elbow or Straight.

**GITS BROS. MFG. CO.**
1854 S. Kilbourn Ave. Chicago 23, Ill.

If you write maker identify as IEN - 11483

## TIMING . . Electronic unit closes circuit for preset interval

Source: G. C. WILSON & CO.
4 N. Passaic Ave., Chatham, N. J.



Bulletin 653

Type 60-MC is a new electronic interval timer in assembly with a single-pole double-throw relay rating 10 amperes. The relay contacts stand normally open. The timer closes them, following actuation by a foot switch, push button, pressure switch, or other momentary or sustained closing device, for a predetermined interval as set at two dials on the housing. Interval range is minimum at 0.1 sec. and maximum at 60 seconds. The assembly can be supplied with the chassis only measuring 3 by 4 by 5 in. or in the housing shown. It measures 7 by 4½ by 9 inches.

If you write maker identify as IEN - 11484

## MELTING . . Granular chemical removes ice and snow from yard aisles

Source: MONROE COMPANY
10701-5 Quebec Ave., Cleveland 6, Ohio

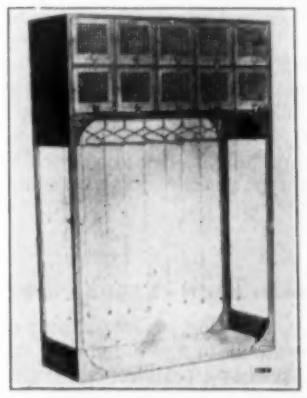
**For walks, drives, steps, platforms**

Ice Remover No. X-73 is a new granular chemical designed to sprinkle lightly over icy surfaces. It melts the ice and snow quickly, eliminates the need to chip and minimizes shoveling. The chemical contains a rust inhibitor. It is available in 100 and 200-lb. fiber drums and in waterproof bags.

If you write maker identify as IEN - 11485

## STORING . . Locker rack in unit assembly for 10 workers

Source: LYON METAL PRODUCTS INC.
1734 Montgomery St., Aurora, Ill.



Chain secures coats

**Square enclosures** fitted with lock equipped doors mount at the top of this new rack. Ten coat hangers are suspended beneath the enclosures, each with a chain terminating in a fitting. A worker's coat is secured by dropping the chain through a sleeve and then locking the chain in position in a slot in that particular worker's door. As long as the door is locked the coat cannot be removed.

**The doors** drop shut from the top. A raised base keeps clothing and overshoes off the floor. The doors are finished in tan, the rest of the unit in green baked enamel. Dimensions are 50 by 18 by 76 inches.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11486

If you write maker identify as IEN - 11487

U·S·S **multigrip** FLOOR PLATE

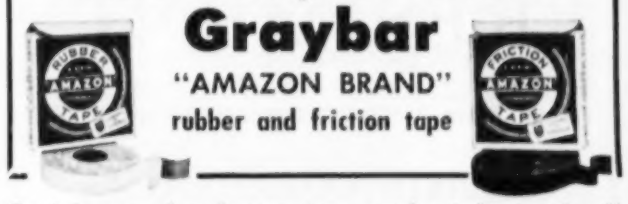
UNITED STATES STEEL CORPORATION, PITTSBURGH
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL SUPPLY DIVISION, CHICAGO
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

*Sold by leading distributors from coast to coast* 3-1812

UNITED STATES STEEL

If you write maker identify as IEN - 11488

## FREE sample rolls of Graybar "AMAZON BRAND" rubber and friction tape




Send for your free Amazon tape samples, today—each roll contains enough tape to make a worth-while trial...*more than enough* to prove its superiority. Ideal for the most exacting job requirements, Graybar Amazon rubber and friction tapes meet all A.S.T.M. and government specifications.

**Graybar *Amazon Friction tape***
Constant inspection during manufacture assures both high quality and extreme uniformity. Special long-fibred rubber compound virtually eliminates pinholes and affords superior adhesion.

**Graybar *Amazon Rubber tape***
Designed for severest kind of service, only the purest plantation rubber is used in its manufacture. Extremely elastic, it amalgamates into a solid watertight mass...withstands dielectric test of 350 volts per mil of thickness.

*For complete information* on the tape best suited to your particular requirements, ask your local Graybar Representative or write: *Graybar Electric Co., Inc. Executive Offices: Graybar Building, 420 Lexington Ave., New York 17, N.Y.*

**Call Graybar *first* for . . .** Everything Electrical GraybaR ELECTRIC COMPANY

370-1210

If you write maker identify as IEN - 11489

## GOES TO THE SPOT TO SPOT-LIFT

The 'Budgit' Aluminum Chain Block is the ideal portable hoist for easy, fast spot-lifting. The ¼-ton size weighs only 29 lbs.; yet, it is so efficient a pull of only 25 lbs. on the hand chain lifts the full load.

Use the one-man 'Budgit' on all your maintenance and emergency lifting jobs. It's the toughest spur-geared chain block ever produced. The hooks won't fracture. No ordinary hacksaw can cut the load chain. Every fastening is splined for extra strength. The large automatic load brake provides quick, powerful holding action. Man, load, and hoist are completely protected.

Whenever spot loads must be handled in a hurry, you can depend on the lightweight 'Budgit' Aluminum Chain Block. Sizes range from ¼ to 2 tons. Ask your "Shaw-Box" Distributor for all the facts or send for Bulletin 398.

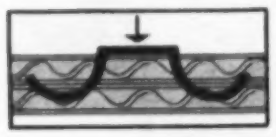
**'Budgit' CHAIN BLOCKS**
**MANNING, MAXWELL & MOORE, INC.**
Muskegon, Michigan

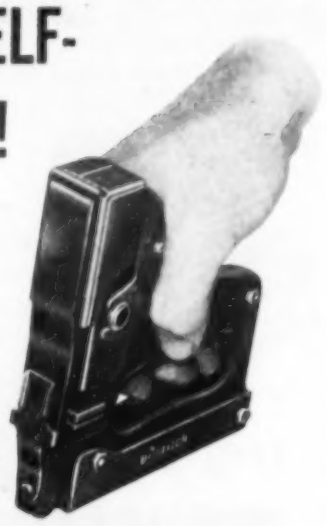
Builders of "Shaw-Box" and 'Load Lifter' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of 'Ashcroft' Gauges, 'Hancock' Valves, 'Consolidated' Safety and Relief Valves, and 'American' Industrial Instruments.

*If you write maker identify as* **IEN - 11490**

# LOOK! A SELF-CLINCHER!

No blade to insert!
Staple spreads itself under or inside the work!





*Bostitch T5 Tacker → with outward clinch*

Use it for stapling insulation around pipes and ducts ... fastening shipping tags to corrugated containers ... any job that calls for a blind clinch. By lightly pressing the handle you automatically drive a staple and turn its legs outward to clinch under or inside the work. Two models for light and medium staples. Call the Bostitch economy man in your area.

**BOSTITCH** AND FASTER fastens it better with wire

For more information about the Bostitch T5 Tacker with outward clinch, write BOSTITCH, 650 Mechanic St., Westerly, R. I.

*If you write maker identify as* **IEN - 11491**

# RESIMENT

**FURANE RESIN CEMENT FOR CORROSION RESISTANCE**

- **RESISTS CORROSION – Acids, Alkalies, Solvents**
- **SETS PERFECTLY – Summer or Winter**
- **WITHSTANDS HEAT – Temperatures up to 375° F.**

Highly efficient as a mortar for corrosion-resistant masonry, Resiment is low in porosity and high in compressive and tensile strength. It is supplied in the form of powder and liquid, in proper combinations, for mixing at time of use. Sets quickly by internal chemical reaction.

***Write for Folder and Prices***

**DELRAC CORPORATION**
**132 Mill St. Watertown, N. Y.**

*If you write maker identify as* **IEN - 11492**

# Get these facts!

**ON QUICK, EASY PRODUCTION OF NYLON MAINTENANCE PARTS FROM POLYPENCO® NYLON ROD ... STRIP ... TUBING**

These bulletins give full information on POLYPENCO nylon standard shapes. Cite examples of how to get *all* the advantages of nylon for maintenance parts by fabricating from standard shapes.

- Standard shapes (rod, strip, tubing)
- Formulation and characteristics
- Available sizes and length
- Recommended machining practice

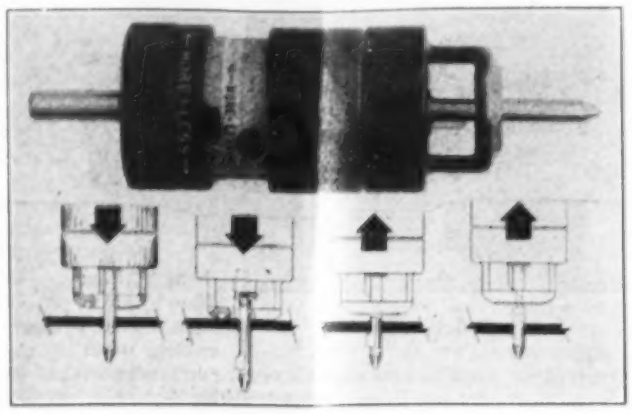
*CLIP AND MAIL COUPON NOW!*

The Polymer Corporation of Penna., Reading, Penna.
Please send full technical and fabricating data ☐
rod, strip and tubing prices ☐
NAME ..... TITLE .....
COMPANY .....
ADDRESS .....
CITY ..... ZONE ..... STATE .....
(Please print)

*If you write maker identify as* **IEN - 11493**

## BURRING .. Rotary cutting tool to burr and chamfer two work faces

Source: NOBUR MFG. CO.
715-19 Victory Blvd., Burbank, Calif.



**List is $24.50**

**Noburmatic** is a new combination burring and chamfering tool for use in a portable drill or a machine spindle. It removes burrs and chamfers one face on entering a drilled or punched hole. It repeats on the opposite face upon retraction from the hole. Independent controls are provided for both faces.

**The tool** is available in two types, one for relatively soft metals, the other for ferrous and tough metals. Sizes range from ⅛ to ¼ in. in hole diameter.

*If you write maker identify as* **IEN - 11494**

## SWITCH .. Safety design in dust, oil, moisture proof enclosure

Source: SQUARE D COMPANY
6058-62 Rivard St., Detroit 11, Mich.

**For machine use**

**The company** announces a new line of NEMA XII safety switches in ratings from 30 to 200 amp. on 220 and 600-volt ac/dc. Assembly is in a steel housing with a cover sealed by a neoprene gasket and held closed by a latch and captive screws. The assembly includes an operating mechanism interlock and external mounting feet. The mechanism is the company's heavy duty visible blade design with magnetic blow out plates, nontracking insulation, silver plated copper parts, pressure fuse clips and quick make-break action.

*If you write maker identify as* **IEN - 11495**

**You can make** a positive drive connection between a pair of pulleys by applying a length of bead chain and machining the pulleys to fit. Several manufacturers of electronic equipment are using the design. At least one air conditioner employs it to rotate a damper in step with an operating switch. Bead Chain Mfg. Co., 108-12 Mountain Grove Ave., Bridgeport 5, Conn., can tell you about it.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* **IEN - 11496**

**SENSATION of the PHILADELPHIA MATERIALS HANDLING SHOW**

**THE NEW LOW COST OVERHEAD CONVEYOR of revolutionary design for loads up to 60# per foot**

# CHAINVEYOR

We can't begin to adequately describe the advantages of Chainveyor in limited space. Simplicity of design—Reduction of unnecessary bulk and weight—Full ball bearing chain—15" radius curves—The only conveyor system with chain and curves scientifically heat-treated to "file hardness" to triple the life—Simple, rugged, positive, sprocket tooth drive—So easy to install that half of our buyers do it themselves—and *the price is most interesting.*

If your requirements fall within its capacity, send for our new catalog giving complete information.

*Distributors in principal cities*

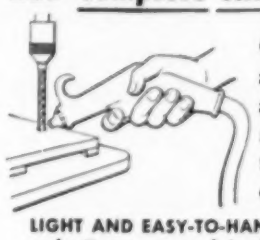
**United States Spring & Bumper Co.**
4951 Alcoa, Box 2475 Terminal Annex Los Angeles 58, Calif

*If you write maker identify as* **IEN - 11497**

*Only this Quick-Cleaning*

# Bully-Blow Gun

*has Complete Air Pressure Control*



● Where air is used to clear away chips, shavings, filings, and moisture, the exclusive metering trigger produces just the amount of air the operator wants.

**LIGHT AND EASY-TO-HANDLE** The Bully Blow Gun weighs only 7 ounces and is shaped to fit securely in the hand of the operator.

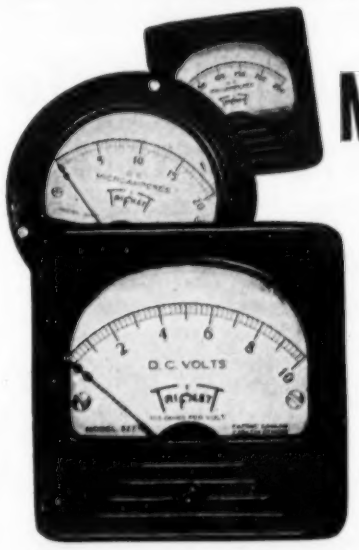
**LAST FOR YEARS** Made of high-strength aluminum, the Bully Blow Gun stands up under hard use and won't rust or corrode.

**NO UPKEEP NOR REPAIRS** Bully metering trigger can not leak, eliminates discs, stuffing boxes and springs. There's nothing to wear out.

**WRITE TODAY FOR DETAILS** Complete information available on the Bully Blow Gun, Bully Fulflo Air Filter, and the Big (50 Oz.) and Bantam (22 Oz.) Bully Air Hammers.

**Superior Pneumatic & MFG. INC.**
4758 WARNER ROAD
CLEVELAND 25, OHIO

*If you write maker identify as* **IEN - 11498**



# MODERNIZE WITH TRIPLETT METERS

**A SIZE, TYPE, AND STYLE FOR EVERY INSTALLATION**

**Your** instrumentation is strictly modern in design and construction with Triplett Meters. You can have sizes 2" to 7" in a wide variety of case shapes and mounting arrangements, A.C., D.C., R.F., Rectifier or Dynamometer. Molded and metal cases, rear illumination, and other special features are available. For precision and economy virtually every meter part is made in Triplett plants under rigid humidity and dust control. Every meter represents the refinements gained in half a century of meter experience. Keep *your* panels up-to-the-minute with Triplett Meters—famous the world over for quality, accuracy, and dependability.

Triplett Electrical Instrument Co.
Bluffton, Ohio, U.S.A.

TRIPLETT

*If you write maker identify as* **IEN - 11499**

# Quality Shop Equipment

***PROMPT DELIVERY FROM STOCK***

**SHURE-BUILT EQUIPMENT...**
***standard or custom made to your specifications***

Shure-built "Scotty" Industrial Work Benches now available in wide range of sizes; many exclusive features; steel, laminated hardwood or Nat-flex* tops. Portable Carts and Cabinets, Foremen's Desks; sturdy construction, attractively priced. Write for catalog and prices on standard stock items, or send us your specifications for prompt quotation on special items.

*Trade Mark

**Shure**
**MANUFACTURING CORPORATION**
**1601 S. Hanley Rd. St. Louis 17, Mo.**

If you write maker identify as IEN - 11500


**Sure!** Turner can furnish ordinary 3 or 4 speed transmissions — BUT . . . Turner can ALSO furnish 6 or 9 speeds for AS LITTLE AS $10 to $20 ADDITIONAL . . .

Now, for slight added cost you can have 6 or 9 speeds at the "twist of a wrist." Models range from fractional to 60 H.P. Wide range of applications on machine tools as well as other equipment. Write for specification and descriptive catalog.

*See your dealer or write for further details*

TURNER 3R3 UNI-REDUCER

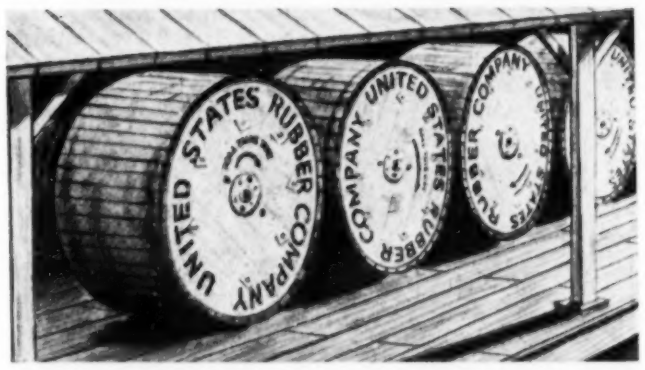
New simplified speed reducer mounts on motor shaft with torque arm to frame or base. Fits standard motors 1 to 5 H. P., 1800 RPM; 1 at 3 H.P. 1200 RPM. Reduction ratio 3.04 to 1. Write for information.

TURNER UNI-DRIVE Company

3479 Terrace Street Kansas City 8, Missouri


If you write maker identify as IEN - 11501

# How to prolong the life of wire and cable by proper storage




1 **Protect cables from the weather.** Moisture is especially injurious to fibrous coverings. When stored out-of-doors, if they become wet and then freeze, they will be weakened and the saturant will flake off. In humid weather, mold growth is accelerated, weakening the covering and making it easier to damage the cable during installation. (Rubber and thermoplastic insulated and jacketed cables may be stored under moderately humid conditions.) The larger sizes of fibrous covered and rubber jacketed cables and all lead-sheathed rubber insulated cables must be stored on reels which must be properly lagged—or the cable must be otherwise suitably protected against mechanical damage. Reels can be stored out-of-doors if the cable is protected against sun and weather, and the ends are properly sealed.

2 **Don't expose wires and cables to extremes of temperature.** Chemical reactions occur at a higher rate at high temperatures than low. The greatest deterioration of low-voltage cables is due to chemical changes, oxidation or internal changes in the compound itself. Never store reels in the boiler room unless you use a fan to blow hot air away from the wires and cables. It's best to store cables at room temperatures indoors out of direct sunlight. Rubber insulated cables may be stored and handled without damage at the lowest temperatures ordinarily encountered, but thermoplastic synthetic insulated cables should not be handled at temperatures below -10 C. (14 F.)

3 **Reels should be kept off the ground,** so that moisture will not harm the cables, reel flanges and lagging. Sound reels are easier to handle and there is less chance of injury to the cable as it is removed from the reel.

4 **Coils should be stored one layer deep on the floor or shelves,** with the axis either horizontal or vertical. To save space, they may be stacked, but not more than 5 coils in height—otherwise there is harmful pressure on the insulation. Don't remove brown paper or box that protects against dust and light until used.

5 **Rubber insulated fibrous covered, rubber jacketed or lead-sheathed cables in storage** should never be bent to a diameter less than I.P.C.E.A. recommended diameters. Never let coils or reels drop more than a few inches. Always roll a reel in the direction indicated by the arrow on the flange. When rolling an unlagged reel, put planks under the flanges to avoid pressure on the cable. Coils, reels and spools should always be rotated when wire and cable is removed to avoid twisting the cable.

*FOR FREE REPRINTS, WRITE TO ADDRESS BELOW.*

**UNITED STATES RUBBER COMPANY**

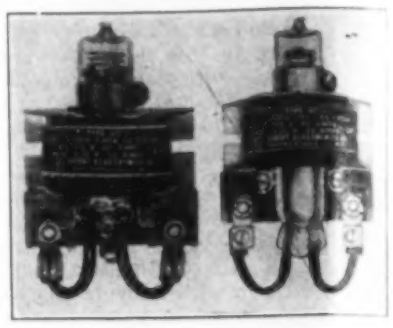
**Electrical Wire and Cable Department**

ROCKEFELLER CENTER • NEW YORK 20, NEW YORK

If you write maker identify as IEN - 11503

## RELAY . . Sealed mercury design has rating of 60 amp. on 110 volt ac.

**Source: EBERT ELECTRONICS CORP.**
**212-24 Jamaica Ave., Queens Village 28, N. Y.**



**For heavy duty control**

Model **HD-1**, normally open, and Model HD-2, normally closed, are new designs in the company's line of solenoid operated mercury relays, previously described IEN-10036-51. Rating is 60 amp. on 110-volt ac., 35 amp. on 220-volt ac., 12 amp. on 110-volt dc., 7 amp. on 220-volt dc. The operating solenoid can be specified for 110 or 220-volt ac. or dc.

**The relay** employs mercury-to-mercury contacts in a sealed assembly that is spark proof and requires no contact maintenance. Overall dimensions are 4¼ by 2⅝ by 2¼ inches.

If you write maker identify as IEN - 11504

## STRIPPING . . Acidic solution removes plating from zinc die castings

**Source: ENTHONE INCORPORATED**
**440-44 Elm St., New Haven 11, Conn.**

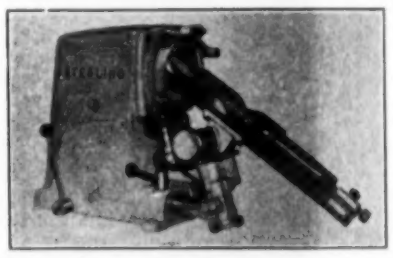
**List price**
**$2.50 per gallon**

**Compound L-88** is a new liquid, supplied in standard 13-gal. carboys, to remove defective copper, nickel and chromium plating from zinc base die castings. The work is made the anode in an electrolytic set up operating at 6 volts. A passive film is formed that inhibits further attack when all of the defective plate has been removed and the zinc surface is exposed. The solution is employed at 70 to 180 deg. F.

If you write maker identify as IEN - 11505

## GRINDING . . Bench type machine for twist drills from 1/8 to 2½ in.

**Source: McDONOUGH MFG. CO.**
**1554 Galloway St., Eau Claire, Wis.**



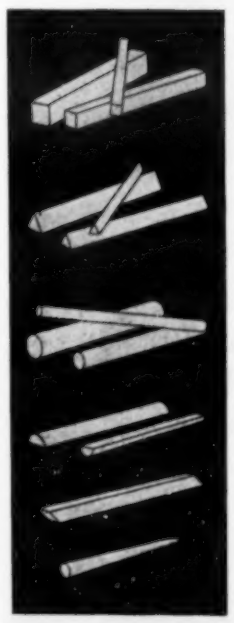
**No chuck required**

**A twist drill,** with 2, 3 or 4 lips, is positioned in the swivel holder on this new Model-DB grinding machine and is brought into grinding position by turning an end adjusting screw. It is rocked back and forth across the wheel face to grind one lip, then is turned for the next one. No particular skill is required. The machine is equipped with a diamond holder for wheel dressing. It is driven by a ½-hp. motor operating on 110-volt ac. or dc. The cup wheel measures 6 by 1½ by ½ inch. It has a 4 by 1-in. recess.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11506


**PICK THE FILES YOU NEED**
**35 SHAPES . . . . 97 SIZES**



*Famous Quality*

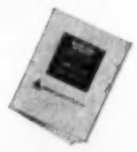
**INDIA® OILSTONES**

Master machinists, tool and die makers know the value of having a selection of these famous oilstone files always on hand. For really close work on dies, tools, and parts, and for deburring, radiusing, and chamfering, experts insist there is nothing finer than INDIA Oilstones. They cut fast and accurately to meet closest tolerances. There's a size and shape for any job plus choice of three grits: Coarse, Medium, and Fine. Also, get HARD ARKANSAS* Oilstone Files for unmatched super-fine finishes. Ask your distributor for them.

**FOR THE FILE YOU WANT**

ask for Catalog #19, a handy, illustrated reference for the entire line. Address Behr-Manning Corp., Troy, N. Y., Dept. IEN-10.

® * Trade Marks

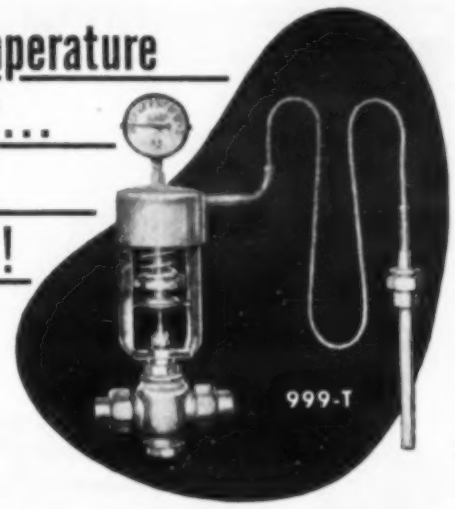


BEHR-MANNING division of NORTON Company

COATED ABRASIVES · SHARPENING STONES · PRESSURE-SENSITIVE TAPES


If you write maker identify as IEN - 11507


**Tells temperature instantly . . . keeps it accurate!**




● Sylphon Regulator No. 999-T is ideal for maintaining accurate temperature control, for assuring uniform processing conditions. Dial-indicating thermometer tells temperature being maintained at regulator bulb location. Stainless steel frame. 2-ply Sylphon bellows for added power. Sensitive, simple, sturdy and compact. Self-operating. Serves for years. Used on storage water heaters, metal plating tanks, treaters, slashers, etc. Write for Catalog **TN.**

**FULTON SYLPHON DIVISION**

ROBERTSHAW-FULTON CONTROLS CO. • • KNOXVILLE 1, TENN.

*Temperature Controls • Bellows Devices • Bellows Assemblies*

*Canadian Representatives, Darling Brothers, Montreal*


If you write maker identify as IEN - 11508

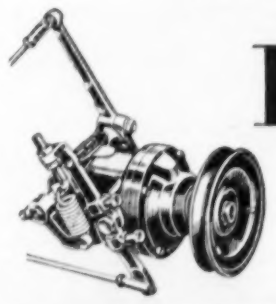

**Write for your copy of this new 32-page engineering manual . .**

This new illustrated manual is full of information about Mueller Brass Co. brass, bronze and aluminum forgings . . . includes charts, graphs, facts and figures that give complete data about design factors, tolerances and the chemical, mechanical and physical properties of the MBC forging alloys. Get your copy of this valuable handbook today . . . it's yours for the asking.

**MUELLER BRASS CO., PORT HURON 26, MICHIGAN**

112-A


If you write maker identify as IEN - 11509

**now**

**ONE GOVERNOR ONE MODEL . . .**

**for 9 out of 10 industrial and farm engines**

**PIERCE LONG RANGE UNIVERSAL GOVERNOR**

● Instant variable speed selection and accurate engine control at any speed setting within 1200 to 2600 RPM. Higher and lower ranges obtainable by simple change of pulley. Also "constant speed" operation.

● Accurate, dependable speed control for engines operating corn shellers, drag lines, hoists, arc welders, trucks and tractors with power take-offs, etc.

List Price $39.50 Pulley extra

*Write for Complete Information*

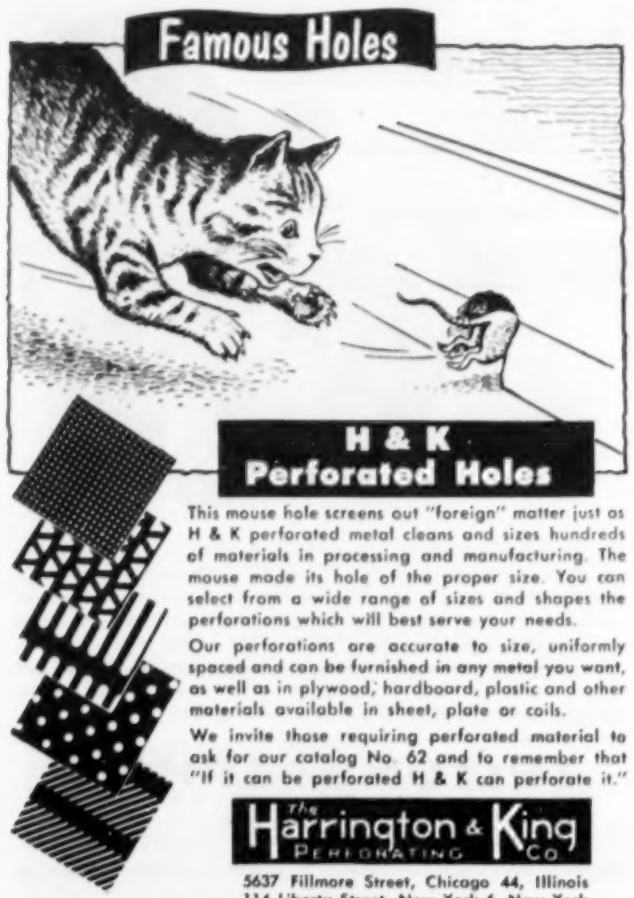
DEALERSHIPS AVAILABLE

**THE PIERCE GOVERNOR COMPANY, INC.**

1636 Ohio Avenue, Box 1000, Anderson, Indiana, U. S. A.

WORLD'S MOST EXPERIENCED GOVERNOR MANUFACTURER

*If you write maker identify as* IEN - 11510




This mouse hole screens out "foreign" matter just as H & K perforated metal cleans and sizes hundreds of materials in processing and manufacturing. The mouse made its hole of the proper size. You can select from a wide range of sizes and shapes the perforations which will best serve your needs.

Our perforations are accurate to size, uniformly spaced and can be furnished in any metal you want, as well as in plywood, hardboard, plastic and other materials available in sheet, plate or coils.

We invite those requiring perforated material to ask for our catalog No. 62 and to remember that "If it can be perforated H & K can perforate it."

**The Harrington & King Perforating Co.**

5637 Fillmore Street, Chicago 44, Illinois
114 Liberty Street, New York 6, New York

*If you write maker identify as* IEN - 11511

## Send for this FREE BOOK

Taber plastic fabricating machines and methods are being used by cost-conscious, profit-minded producers of plastic products, everywhere! That's because Taber equipment handles sheet material .005"-.020" thickness FASTER and at a LOWER COST. You owe it to yourself and to YOUR COMPANY to, at least, get the facts. All the details are in the free booklet.

### SHEAR HARDNESS and DIAMOND SCRATCH TESTER

Tests quality of plastic material and plastic coated surfaces to resist scratches, digs, scrapes and other physical damage not classed as normal wear. Handles specimens from thin plate to ¼" thickness. Used everywhere for precision perfect tests.

### The Taber STIFFNESS GAUGE

Determines both INITIAL and NORMAL stiffness of sheet and wire specimens and gives report from DIRECT READING. Precision shear cuts exact specimens from paper or plastic (up to 20 pt.) to eliminate possible variation in results.

**Taber** INSTRUMENT CORPORATION
SECTION 15
111 Goundry St., North Tonawanda, N. Y.

- ☐ Please send me booklet on Taber Plastic Fabricating Equipment
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NAME .....
COMPANY .....
ADDRESS .....
CITY ..... ZONE ..... STATE .....

*If you write maker identify as* IEN - 11513

## MOTOR CONTROL . . Reversing switch, two pole design, 1 hp. at 110 volt ac.

**Source: HART MFG. CO.**
**108-12 Bartholomew Ave., Hartford 6, Conn.**

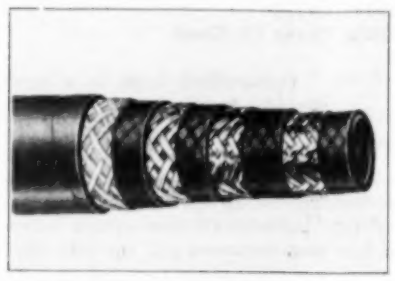
**Trouble free**

**Auto-Lock** connectors, employed in this Series 850 reversing switch, grip stripped ends of standard wires that are pushed into connected position. No binding screws or additional clips are required. Depressing a small lever releases each wire. The switch is designed for use on washing machines, air conditioners, small power tools employing single-phase motors. Approximate overall dimensions are 1⅝ by 1⅞ by 1⅛ inches. The mechanism can be specified without the housing for built-in installation in equipment assemblies.

*If you write maker identify as* IEN - 11514

## HOSE . . Wire reinforced design for steam pile driver service

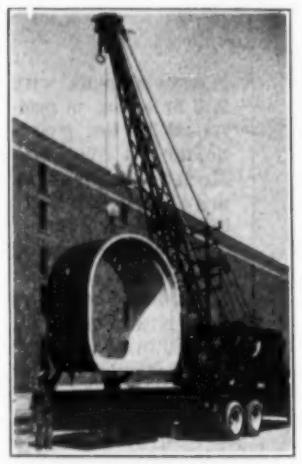
**Source: QUAKER RUBBER CORP.**
**Comly & Tacony Sts., Philadelphia 24, Pa.**



**1½ to 2½ inches**

**Three layers** of horizontally braided steel wire, plus a layer of braided glass cord, are employed in this new Pile Driver hose. The tube is made of synthetic rubber to stand up in temperatures to 390 deg. F. and to resist attack by oil. The hose is covered with an abrasion, heat and oil resistant layer of rubber. It is bonded to the reinforcing braids.

*If you write maker identify as* IEN - 11515



**Need a tunnel?** If you do you can contract with Universal Concrete Pipe Co., 295-99 S. High St., Columbus 15, Ohio. This company will design and build one for you and ship it to you in sections like the 97 by 97-in. tongue and groove job illustrated. You sink and connect the sections and there is your tunnel.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11516

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Simplify and speed your purchasing of electronic supplies and equipment. Send your orders to us for quick shipment from the world's largest stocks of special-purpose electron tubes, test instruments, audio equipment, electronic parts (transformers, capacitors, controls, etc.). Our expert Industrial supply service saves you time, effort and money. Send today for your Free ALLIED Catalog—the complete, up-to-date guide to the world's largest stocks of Electronic Supplies for Industrial use.

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100 N. Western Ave., Dept. 14-K-3
Chicago 80, Illinois

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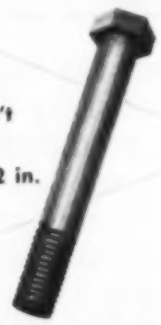
*If you write maker identify as* IEN - 11517



You wouldn't hold a bolt to ± 0.0002 in.

*Why pay for unneeded precision in ball bearings?*

This free catalog tells you how to cut bearing costs

Replace precision bearings with "commercials" and you save. You can do this under certain conditions, and this catalog tells you what they are. Write for it today.

*The oldest, largest manufacturer of "Commercial" Ball Bearings*

**SCHATZ "Commercial" BALL BEARINGS**

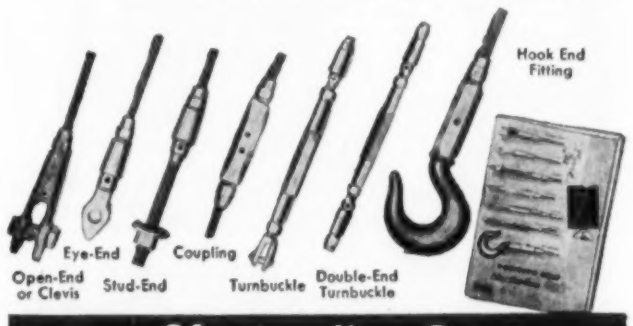
THE SCHATZ MANUFACTURING CO., 6750 Fairview Ave., Poughkeepsie, N.Y.

*If you write maker identify as* IEN - 11518

## Cut out needless re-roping costs

**USE ELECTROLINE WIRE ROPE FITTINGS**

In minutes, ordinary labor can install Electroline fittings that will hang on for all time. Prolong wire rope life by damping vibration stresses thus eliminating wire rope fatigue at the fitting. Write for Electroline Catalog. It points out many savings—no cost.




**Electroline Company**
4121 SOUTH LA SALLE STREET
CHICAGO 9, ILLINOIS
IN CANADA: POWERLITE DEVICES, LTD., TORONTO

*If you write maker identify as* IEN - 11519

## Brookville fully insulated STEEL BUILDINGS

STANDARDIZED

COMPLETE Fully Insulated All-Steel ROOFS

Is the time factor important? Brookville all steel Buildings can be erected quickly. They are permanent, adaptable to all uses and cost much less than buildings of the conventional type.

Special fronts and various types of doors and windows are available for suitably housing such activities as Factories, Laboratories, Warehouses, Machine Shops, Stores, Clubs, etc.

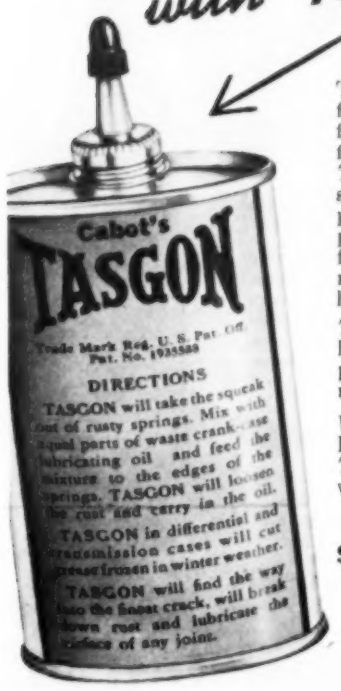
Standardized Crane Runways 5-7½-10 TONS for 40-48-60 Ft. CLEAR SPANS

*Illustrated folder upon request*

**Brookville Manufacturing Co.**
P.O. BOX 67 · BROOKVILLE, PA.

If you write maker identify as IEN - 11520

# Cut repair time with Tasgon




The quickest, most effective way to free rust-frozen nuts, bolts and fittings is with Cabot's *Tasgon*, the original rust solvent. *Tasgon* quickly penetrates to the farthest points, loosens contact surfaces, cuts through gummed up oil and grease, and hardened paint.

*Tasgon* cuts time and labor . . . saves broken parts . . . keeps maintenance costs down.

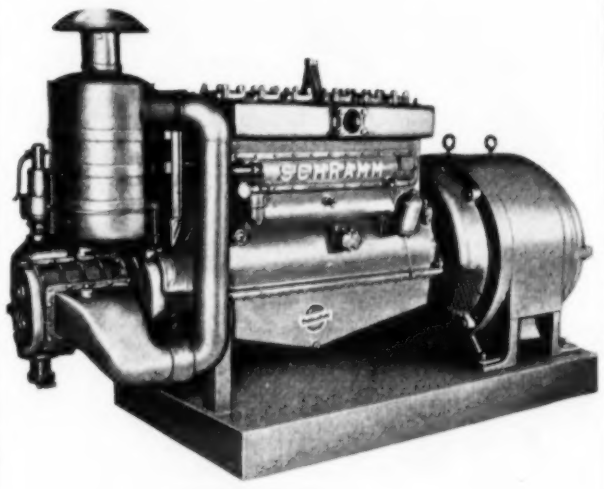
*WRITE TODAY* for FREE *SAMPLE*. Try *Tasgon* once and you'll always keep a supply on hand.

**SAMUEL CABOT INC.**
1033 Oliver Bldg.
Boston 9, Mass.

If you write maker identify as IEN - 11521

## SCHRAMM SUPER-Unistage

### Air Compressor Offers Many Advantages . . .



### A Super-Charged 600 c.f.m. Air Compressor Designed to meet your Compressor needs for . . .

**COMPACTNESS**...requires less floor space

**UNIT SYSTEM**...installed as a series, providing air as needed

**VIBRATIONLESS**...perfect balance of all moving parts

**COMPLETE PACKAGE**...no extras—everything one unit!

**NO ELABORATE FOUNDATION**... sturdy floor needed—that's all!

**EASY TO MOVE**...air where you need it—and want it!

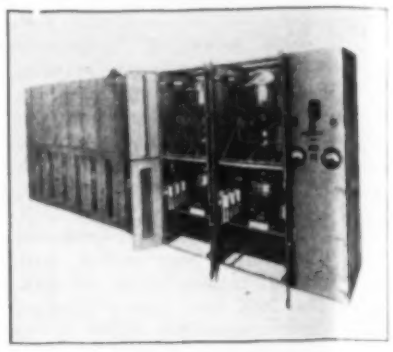
**WRITE FOR FREE COPY BULLETIN 5313**

**SCHRAMM, INC.**
*The Compressor People*
WEST CHESTER • PENNSYLVANIA

If you write maker identify as IEN - 11523

## RECTIFYING . . Mercury arc units, 100 to 1,500 volts, 100 to 5,000 kw.

**Source: RICHARDSON-ALLEN CORPORATION**
**116-13 Fifteenth Ave., College Point, N. Y.**



**To set and forget**

Single, twin and large assemblies are available in the company's new line of air-cooled pumpless mercury arc rectifers in current rating from 150 to 60,000 amp. and dc. power output of 100 to 5,000 kw. The small units are suited for operation on 3-phase ac. at normal power frequencies. Built-in air cooled transformers are enclosed in the cabinet with the mercury arc tube and the triggering equipment. The rectifier can be put into operation without preliminary warm-up. It can be connected permanently to the power line and will operate unattended.

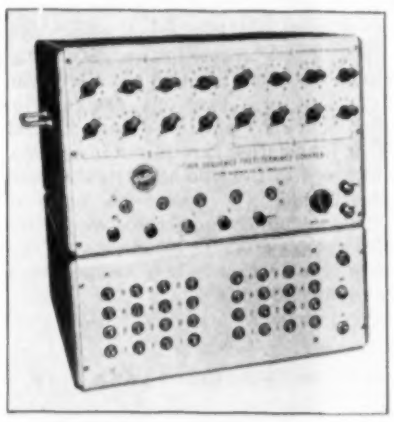
**The twin arc** assembly operates from 3 or 6-phase power for medium capacity loads. It is designed for three-wire dc. circuits and employs two tubes in a side-by-side installation, each above a combined automatic triggering, excitation, and cooling fan unit. They can be connected into the circuit on full load by closing the ac. circuit breaker. The tubes will strike immediately and maintain their arcs regardless of the load.

**The large sizes** are available in standardized packages for use as single units or in banks, the latter arrangements for large power requirements when three-wire dc. is required. Circuit breakers, instruments and switch gear are enclosed in one or more cabinets. Multiple anodes or pumpless single anode tubes can be employed. Transformers are either air cooled or oil immersed.

If you write maker identify as IEN - 11524

## COUNTING . . Electronic equipment presets to 9,999, for sequence control

**Source: POTTER INSTRUMENT CO.**
**113-17 Cutter Mill Road, Great Neck, N. Y.**



**Predetermined sequence**

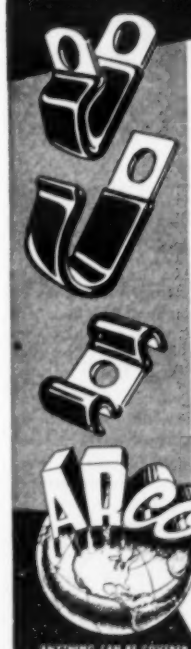
**Four preset totals** can be set up by positioning dial pointers at the top of this new equipment. These totals can be selected for sequence action at pushbuttons below the pointers. The count is indicated on two decade banks at the bottom. The equipment can be installed to control operations in terms of linear measurement, shaft revolutions, quantity, volume, weight, at operating speeds to 60,000 counts per minute. Switching through the four channels is by means of separate relay outputs which provide a voltage pulse at the end of each channel count.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11525

## RUBBER INSULATED CLIPS, CLAMPS AND PARTS (Standard or Special)

ARco



### For Cable, Loom, Tube, Wire Rod and Pipe

● ARco rubber-insulated metal parts offer a utility value that far exceeds their reasonable cost. Greater durability and wider function in terms of electrical and sound insulation, corrosion and abrasion resistance are only a few of the service superiorities that ARco insulated parts can add to your product.

Call for a consultation with our thoroughly experienced Engineers now. Ask them to show you how you can improve your product with a low-cost ARco rubber-insulated metal part. Better yet, send us one of your standard parts for a sample rubber insulation and a quantity estimate. No obligation.

**WRITE FOR THIS VALUABLE INFORMATION! You will find many ways in which you can improve design, engineering and production in this literature which is yours on request. Write today.**

**AUTOMOTIVE RUBBER CO., INC.**
12556 Beech Road at P.M.R.R. • Detroit 28, Mich.

**ARCO RUBBER PROCESSORS**
4033 Homestead Road • Houston, Texas

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● BUY DIRECT FACTORY

● ROPE REEVE, LINK TYPE

● WRITE FOR CATALOG

**INDUSTRIAL BROWNHOIST CORP.**
**BAY CITY, MICHIGAN**

156

If you write maker identify as IEN - 11527

## Check Temperatures Instantly... Accurately with Alnor TYPE 1500 PORTABLE PYROMETER

*Wherever temperature readings are required—on the production line, in the laboratory or in the field—this sturdy precision instrument can bring you instant, accurate results.*

### Here's Why

**It's Fast** . . . in operation and quickly read. Precision movement designed to laboratory standards. Direct reading scale face is easily understood—no slide wires or conversion tables necessary.

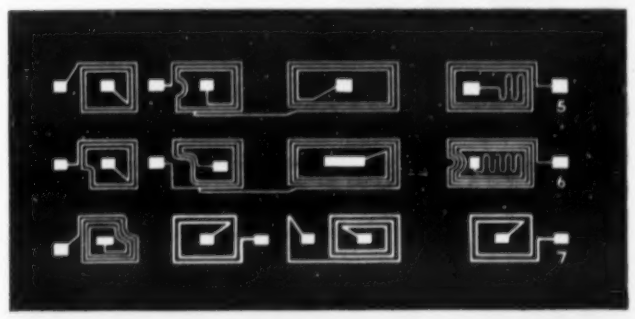
**It's Accurate** . . . consistently to within ¾ of one percent under almost all variable conditions. Sturdy, protective case assures continued accuracy in toughest portable service. Ten scale ranges available, from 0-400° to 0-3000°F. Equivalent Centigrade scales available at no extra cost.

**It's Portable** . . . compact size, 6½"x6"x3", and light weight make this pyrometer highly portable and easy to use anywhere. Write today for complete details and prices. Illinois Testing Laboratories, Inc., Room 517, 420 N. La Salle Street, Chicago 10, Illinois.

*Send for Bulletin on 1500 Pyrometer.*

Alnor — PRECISION INSTRUMENTS FOR EVERY INDUSTRY

If you write maker identify as IEN - 11528




## FOIL Your Circuit Troubles

. . . and Synthane laminated plastics with copper-foil on one or both sides, is one good way to do so. "Printing" circuits speeds up your operation . . . saves space . . . reduces the possibility of error. Synthane has pioneered in the production of copper clad laminates. Synthane laminated plastics with copper foil have good insulation resistance and are easy to punch or machine. We can supply foil-laminated Synthane in the grade and thickness you need . . . and in the quantity you require. Get complete information on copper-foil Synthane and its place in electronics. Use the coupon today.

SYNTHANE

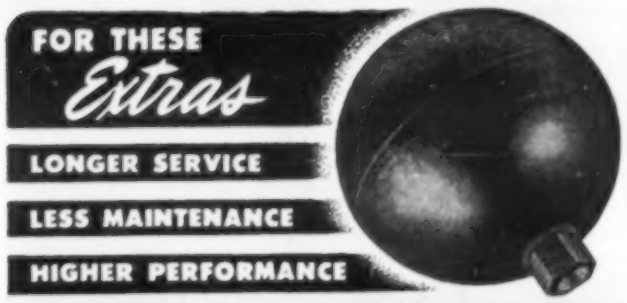
Manufacturers of laminated plastics
SHEETS
RODS • TUBES
MOLDED-LAMINATED
MOLDED-MACERATED
FABRICATED PARTS

**SYNTHANE CORPORATION**
South River Road, Oaks, Pa.

Gentlemen:
Please send me information on Synthane laminated plastics and its use in "printed" circuits.

Name _____
Address _____
City _____ Zone ____ State _____

*If you write maker identify as* IEN - 11529

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- **SAVE MONEY** — automatic dispenser delivers any predetermined lengths, eliminates waste
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**NASHUA PACKAGE SEALING**
DIVISION OF NASHUA CORPORATION
Nashua, N.H.

Please send me a National Tay-Per for a 10 day FREE trial.

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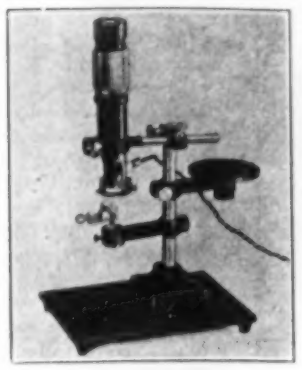
Company_____
Address_____
Dept. ??

*If you write maker identify as* IEN - 11532

## GAGE . . Measuring microscope, combines lens and measuring scale

**Source: NATIONAL INSTRUMENT CO.**
**5003-7 Queensbury Ave., Baltimore 15, Md.**



**It is accurate**

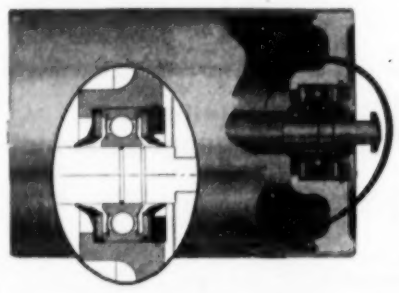
**New mounting** includes a work holding vise, rotating table, built-in illuminator, detachable base plate and fine focusing adjustment. It has been developed for the 50X Optometer measuring microscope, previously described IEN-1236-52. Two new instruments also have been added with magnifications at 20 and 40X. The 20X unit has a field of view measuring 0.580 in. in diameter and a scale reading direct to 0.002 inch. The 40X unit provides an 0.290-in. field and 0.001-in. scale divisions.

**Applications** include crest and root width measurements on threaded work, radii of points and corners, slot widths, chamfers, grooves, distances from center punch marks to scribed lines, small holes in gages and dies, Brinell impressions, cracks in castings, paper fiber textures, distribution of coloring matter, textile weave and twist, faults in dyeing.

*If you write maker identify as* IEN - 11533

## CONVEYING . . Belt idler assemblies factory lubricated, permanently sealed

**Source: TRANSALL INCORPORATED**
**155 N. 11th St., Birmingham 4, Ala.**



**No lubricant fittings**

**The company** announces recently improved design for its factory lubricated, permanently sealed belt idler, previously described IEN-9860-51. A new method of mounting the bearing in the roll eliminates possibility of axial preloading. As in the previous design, closures on both sides of each bearing keep the grease in and exclude dirt and moisture. No lubrication is required in service.

**Several** roll types are included in the line of troughing and straight assemblies. These include 4 or 5-in. rolls made of steel, 5 or 6¼-in. rubber disc assemblies for service where impact is a factor. Belt width ranges from 14 to 48 inches. The synthetic grease holds its original viscosity in a temperature range between minus 30 and plus 200 deg. F.

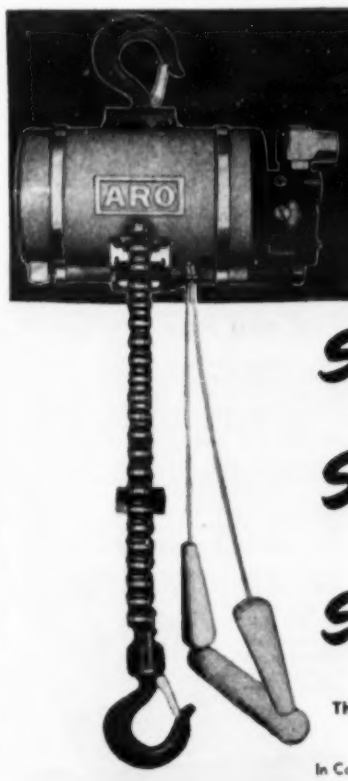
*If you write maker identify as* IEN - 11534

**New mold materials** and procedures, along with a special vacuum melting furnace has made it possible to produce cast shapes of titanium. National Research Corp., 72 Memorial Drive, Cambridge 42, Mass., is prepared to produce pilot quantities of the shapes in pure and in alloyed titanium to several pounds in unit weight.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11535

# ARO
## 1000 pound AIR HOIST




**SPEED...**
Lift rate . . . over 40 ft. per minute!

**SIZE...**
Overall length 10¼" weighs only 28½ lbs.

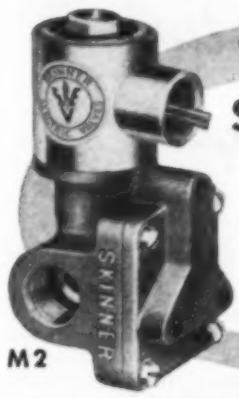
**SAFETY...**
Betters all safety requirements!

*Write for full details.*
**The Aro Equipment Corporation**
**Bryan, Ohio**
*Offices in All Principal Cities*
In Canada—Aro Equipment of Canada, Ltd. Toronto, Ont.

**ARO AIR HOIST**

Also . . . Air Tools . . . Lubricating Equipment . . . Aircraft Products . . . Grease Fittings

*If you write maker identify as* IEN - 11536

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## Solenoid Valves

*for* air & hydraulic cylinders
fluid shut-off
diaphragm operated equipment
coolant control

M2

BRONZE BODY

**"M" SERIES** pilot-operated Skinner Valves have extremely fast action, and large capacity on air, inert gas and liquid applications. All internal metal parts are stainless steel or brass. Soft seals prevent leakage — operate in any position — rubber coated, nylon fabric diaphragm for long life — port size ½" or ¾", orifice ¾" — power consumption, 10 watts — continuous duty.

**M2** is two-way, normally closed, 5 to 150 p.s.i., weight 3 lbs. **M3** is three-way, normally closed, normally open, or directional flow, 20 to 150 p.s.i., weight 3¾ lbs.

M3

*Write for Bulletins* No. 493 & 494

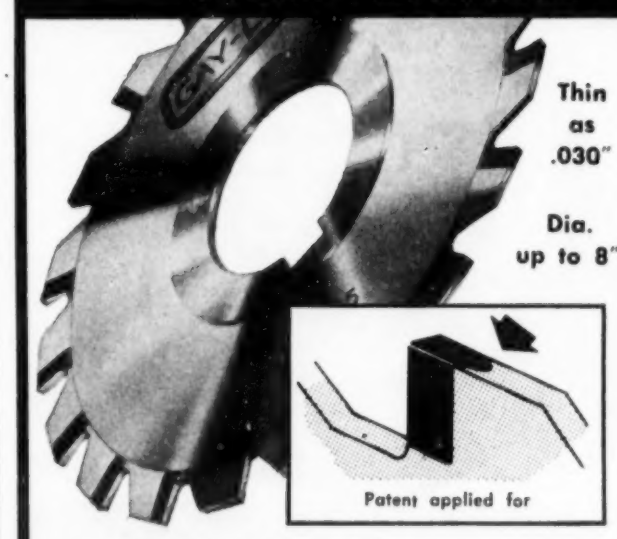
**Skinner ELECTRIC VALVE DIV.**
THE SKINNER CHUCK COMPANY
**110 Edgewood Avenue • New Britain Connecticut**

*If you write maker identify as* IEN - 11537

CARBIDE TIPPED

# THINSAW

FOR EVERY INDUSTRY

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This exclusive Gay-Lee carbide tipped saw design has completely changed the slitting, slotting and sawing picture. Now carbide tips stay in and run-out is eliminated. You get the full benefit of carbide's faster cutting ability.

**WHAT IS YOUR SAW PROBLEM?**

We are specialists in carbide saw design and manufacture. We have solved some tough jobs and some big ones. Can we help you?

Hub Saw — Thinsaw — Small Saw

**Carbide teeth profile ground on Special Order**

***WRITE FOR DATA***

**GAY-LEE COMPANY**
CLAWSON • MICHIGAN

If you write maker identify as IEN - 11539

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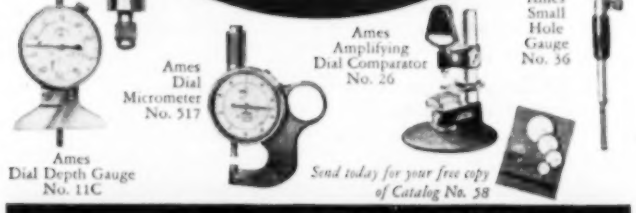
**...the preferred Dial Indicators**

One of America's largest and most famous mass-producers recently chose Ames as preferred source of supply for indicator gauges. They did because the four sizes of Ames "Hundred Series" indicators fit every measuring requirement; they are *accurate, sensitive,* low in friction, yet are *rugged* and *tough* —give *more* on-the-job time. All Ames products embody latest design and highest-quality materials; they are manufactured by methods and machines that are *exclusive* with B. C. Ames Co.

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*Representatives in principal cities.* **B. C. AMES CO.** *38 Ames Street Waltham 54, Mass.*

Mfgr. of Micrometer Dial Gauges • Micrometer Dial Indicators

If you write maker identify as IEN - 11540

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FINE PHOTOGRAPHIC EQUIPMENT SINCE 1897

321 S. Wabash Ave., Chicago 4, Illinois, U.S.A.

If you write maker identify as IEN - 11541

Ten basic sizes with capacities from 30 Mbh to 490 Mbh. Totally enclosed motors.

**nyb**

# UNIT HEATERS

## Built to Meet Modern Industrial Requirements

***Horizontal Type***

Ceiling suspension type with heavy duty, welded steel, fin-and-tube heating element. (Extra heavy non-ferrous coils also available.) Suitable for continuous heating service on steam pressures up to 150 pounds or more.

**Bulletin 513**

***Vertical, Projection Type Also Available***

For efficient heating from high-ceiling areas—for door heaters over small openings—or where the horizontal type is not applicable. Ten basic sizes; capacities from 27 to 332 Mbh.

**Bulletin 516**

IUHA HEAT WITH UNIT HEATERS

**nyb THE NEW YORK BLOWER COMPANY**

SALES OFFICES • 3181 SOUTH SHIELDS AVENUE • CHICAGO 16

FACTORY, LAPORTE, INDIANA

If you write maker identify as IEN - 11542

## TUBE FITTING . . Threaded connector assembles plastic to metal tubes

**Source: CRAWFORD FITTING CO.**
**882-86 E. 140th St., Cleveland 10, Ohio**

**In specified metal**

**New insert,** shown in the center of the illustration, is now available to apply in a plastic tube so this tube can be secured in the company's regular compression connector fitting previously described IEN-11308-49. Rigid plastic tube does not require the insert. It does prevent soft tube collapse for a satisfactory connection when the regular Swagelok fitting is tightened in place. The insert is available in sizes starting at $\frac{3}{16}$ in. in outside diameter.

If you write maker identify as IEN - 11543

## TESTING . . Liquid dye and developer to reveal surface flaws in metal parts

**Source: MET-L-CHECK COMPANY**
**119-23 N. Prairie Ave., Hawthorne, Calif.**

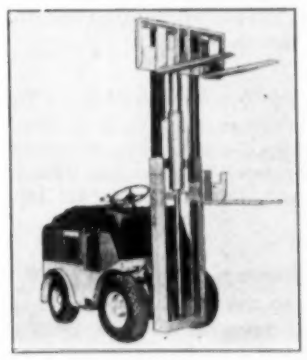
**Applies on local areas**

**Met-L-Check** trade names a recently improved liquid dye and developer to apply, one after the other, on a metal surface suspected of containing flaws. The dye penetrates into the tiniest openings. The developer draws out any of the liquid that has penetrated to clearly outline any existing defect. Penetrant liquid is available in quarts, gallons and drums. A kit containing a small amount of both the penetrant and the developer lists at $5.

If you write maker identify as IEN - 11544

## TRUCK . . High lift mast for company's Model LT-35 fork trucks

**Source: TOWMOTOR CORPORATION**
**1224-28 E. 152nd St., Cleveland 10, Ohio**

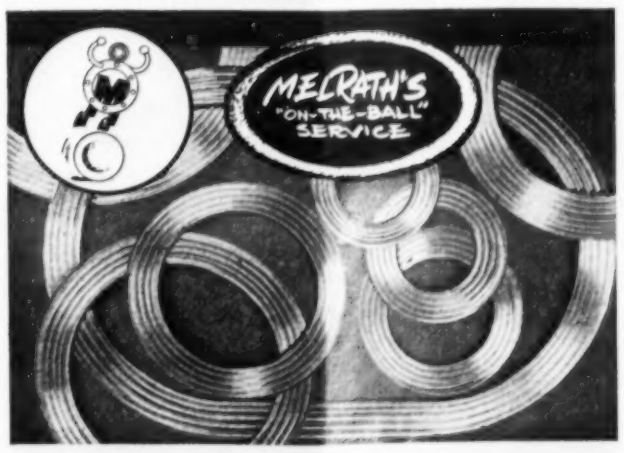


**It is optional**

**High free lift** can be specified for the Towmotor fork lift trucks in its Model LT-35 line by addition of this new mast and lift cylinder assembly. It is interchangeable with the standard mast. It provides for free lift to 64¾ in. when overall lowered height of the truck is 83 inches. This same unit has a maximum lift of 130 inches. Available lifts range to 160 in. with the 81¾-in. free lift. The design assists in high stacking in box cars and areas with low ceilings.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11545




## YOU NAME THE USE . . . WE MAKE THE GASKETS

Melrath engineers are specialists in designing gaskets to meet your individual needs. They assist your engineers with new gasket designs and constructions for equipment in the development stage. For your every-day needs, Melrath standard styles are the most varied in the industry . . . with fast service on special requirements. You can rely on Melrath with 44 years experience in making gaskets from every type of material possible for sealing purposes. Write for 64 page catalog covering Melrath Gaskets, Sheeting, Packing, Washers and Metal Stamping. M-901

**MELRATH SUPPLY & GASKET COMPANY, INC.**

Tioga and Memphis Streets, Phila. 34., Pa.

If you write maker identify as IEN - 11546

**ALLIS-CHALMERS Induction HEATER**

## When Induction Hardening Replaced Carburizing

# REJECTS ELIMINATED

A LEADING AIRCRAFT BUILDER had a high reject rate while carburizing hydraulic control valves. In addition, production was slow. Rework after rework was necessary because material was brittle and straightening was difficult, if not impossible. Depth of carburization was also hard to control . . . and it was a dirty job, too!

***Picture changed overnight*** — Now, with Allis-Chalmers induction heaters rejects or reworks are eliminated; depth of hardening is held between .078 inches and .080 inches; production is greatly increased; and it's a clean, pushbutton type job.

Where there's a problem with warpage, scaling, or heat control, even a relatively low production item can often be profitably processed using induction heat.

Bring your problems to Allis-Chalmers. Call your nearby Allis-Chalmers district office or write Allis-Chalmers, Milwaukee 1, Wisconsin. A-4170

**ALLIS-CHALMERS**

If you write maker identify as IEN - 11547

**SIMPLIFY PURCHASING...**

# Buy Starrett

**1 THE COMPLETE LINE**
Hacksaws, band saws and band knives in all types and sizes to meet all requirements . . . all from one dependable source.

**2 MADE BEST TO CUT BEST**
Precision made to insure correct set for clearance, exact size, uniform temper and maximum cutting ability.

**3 EASIEST TO BUY**
Stocked and sold by industrial distributors everywhere for prompt, dependable, on-the-spot service.

**GUIDES TO LOWER CUTTING COSTS**
Starrett Hacksaw and Band Saw Catalog and Quick Reference Metal Cutting Guide. Write for them. Address Dept. N.

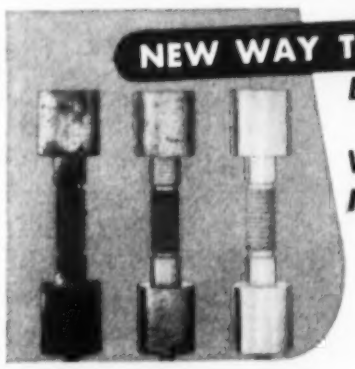
**Starrett** THE L. S. STARRETT COMPANY Athol, Massachusetts, U. S. A.

SINCE 1880 WORLD'S GREATEST TOOLMAKERS

Buy THROUGH YOUR INDUSTRIAL DISTRIBUTOR

VISIT THE STARRETT EXHIBIT — BOOTH 2603
NATIONAL METAL CONGRESS — CLEVELAND, OCTOBER 19-23

If you write maker identify as IEN - 11548



**NEW WAY TO STOP RUST**

*Easily! Quickly! Without Slushing*

**MARVELLUM VPI® WRAP**

Without VPI — With VPI

**Paper coated with a Volatile Corrosion Inhibitor**

Look at these steel samples — they tell the story. After 3 years of unsheltered storage outdoors in an industrial marine atmosphere, only the VPI wrapped sample on the right is still bright and clean. The untreated sample on the left was wrapped in plain kraft, the middle one treated with a good rust-preventive oil and wrapped in Grade A barrier material. All were overwrapped with kraft-asphalt paper. *Your* steel or aluminum parts can be equally well protected from corrosion. VPI, developed for government use during the war, is now available to everyone. Economical, easy to use, VPI can save you time and money.

Marvellum VPI is available in sheets, envelopes or special containers. Marvellum has complete facilities under one roof for designing, producing and coating VPI Wraps. Also makers of a wide range of other barrier materials to meet your needs for product protection. Distributors in all major cities.

**Get all the facts. Write for FREE BOOKLET**

**The Marvellum Company**

22 APPLETON STREET HOLYOKE, MASS.

First and Foremost in VPI Protection

If you write maker identify as IEN - 11549

No more running out of drills—your entire stock can be seen at a glance. Each size of drill has its own compartment with rounded bottom for easy selection. You can store dozens of small drills and several large ones in their own compartments. Built-in pricing or inventory system eliminates the need for cost sheets, and will keep a record of drills on hand. *Specifications:* 14½" long, 7¼" high, 7¼" deep. Hammerlin baked enamel finish over rugged steel. *Write for Circular.*

**Made in three models for fractional, number or letter drills**

*"HUOT" is pronounced "HEW-OT"*

**HUOT MANUFACTURING CO.**

**565 No. Wheeler St., St. Paul W4, Minn.**

If you write maker identify as IEN - 11550

**CASE NO. 217:** Work in 120°-180° chromic acid solutions required snag-resistant gloves. Neoprene coated gloves used lasted 3-4 hrs. Job-fitted gloves with 30% thicker red NEOX (reinforced neoprene) coating now average 4 to 5 days.

## Job-fitted gloves are safer, and cost less

**(usually save 40% to 70% of glove costs)**

On many industrial operations, modern gloves made of coated fabric have largely replaced canvas, leather and unlined rubber gloves. Improved coatings, now available, far exceed these older materials in their resistance to cutting action, abrasion, oils, greases, acids, caustics, solvents, degreasants and extremes of temperature.

In addition to cost savings averaging 40% to 70% (as much as 30c per man hour saved under severe conditions) these *job-fitted* gloves solve many problems — from avoiding fingermarks on polished laminates to preventing acid burns in plating baths — from repelling sharp slivers in broach coolant to providing a firm grip on sheet glass.

**Make This Simple Test at Our Expense**

Send a brief description of your operation, materials handled and temperature condition. Without charge, we will recommend and supply sample job-fitted gloves and procedure for testing on-the-job. As world's largest maker of coated industrial gloves our laboratory also develops special gloves to meet special problems. Address Safety Engineering Service, **Edmont Manufacturing Company, 1226 Walnut St., Coshocton, Ohio.**

**Edmont job-fitted work gloves**

*Recommended and supplied by leading industrial distributors*

# NEW LITERATURE

Brief reviews to advise you of available new information published by the manufacturers covering products they offer for your use. Each includes identification, size of the material, information it contains so you can judge its value to you.

Identify as IEN - 0740

**ABRASIVES . .** Steel shot for blast cleaning and peening is made by the company in a new special plant. Its production involves 19 control checks for quality, described in 8-page Bulletin 89. American Wheelabrator & Equipment Corp., 1119 S. Byrkit St., Mishawaka, Ind.

Identify as IEN - 0741

**AIR CONDITIONING . .** Direct-expansion finned-tube coils for duct service are rated at 2 to 10 ton in 11 sizes. Details on Series AC-4 units in 4-page Bulletin 103-53. Tenney Engineering Inc., 24-28 Ave. B, Newark 5, N. J.

Identify as IEN - 0742

**BEARINGS . .** Cast phosphor bronze sleeve bearings, listed progressively in some 800 sizes, also electric motor bearings listed by maker and part number, tubular and solid bronze bars. Pocket Catalog 152, 68 pages. Bunting Brass & Bronze Co., 726-28 Spencer St., Toledo 9, Ohio

Identify as IEN - 0743

**BEARINGS . .** General-purpose bronze bearings in some 920 stock sizes, also cored and solid bronze bars, graphited-bronze bearings, babbitt, electric motor bearings listed by maker, self-lubricating bearings, design and installation data on sleeve bearings. Catalog 530, 104 pages. Johnson Bronze Co., 813-17 S. Mill St., Dept. IEN, New Castle, Pa.

Identify as IEN - 0744

**BEARINGS . .** Miniature ball bearings from .100 to .375 in. o.d. in radial, angular contact, pivot and thrust designs. Information on selection, lubrication, shaft and housing shoulder recommendations in 20-page 1953 Catalog. Miniature Precision Bearings Inc., 103 Carpenter St., Keene, N. H.

Identify as IEN - 0745

**BEARINGS . .** Cutless rubber bearings, made by B. F. Goodrich Co., are for use where bearings are submerged or where they can be water lubricated. Design and application data in 36-page "Cutless Rubber Bearings". Lucian Q. Moffitt Inc., 331-35 S. Main St., Akron 8, Ohio

Identify as IEN - 0746

**BERYLLIUM . .** Information on the metal and its alloys, primarily beryllium copper, is given in 20-page Berylco "Product Directory" on compositions, forms, properties. Beryllium Corp., Box 1462-A, Reading, Pa.

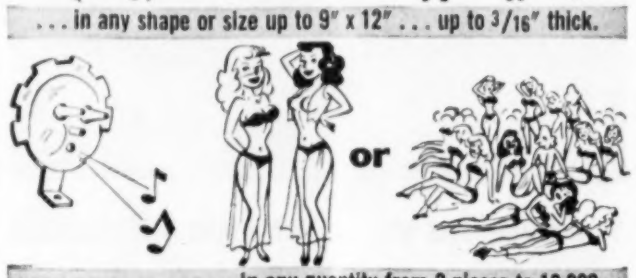
*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11552

**LIKE PRACTICAL (and pleasant) COMPARISONS?**

FREDDY FEDERAL SAYS:

. . . in any shape or size up to 9" x 12" . . . up to 3/16" thick.

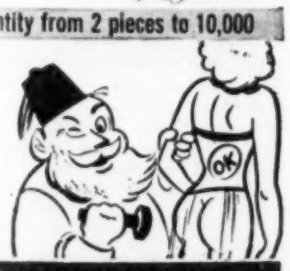



. . . in any quantity from 2 pieces to 10,000

. . . from any stampable material (metal • fibre • plastics)

**TRY US** Send us a print of the stamping you want fabricated and the quantity you need . . . we'll send you an attractive figure without any obligation. This kid says: "We can please you."

*"P.S. Write for Bulletins!"*



**Federal** TOOL AND MANUFACTURING CO.
3612 ALABAMA AVE. ST. LOUIS PARK
MINNEAPOLIS, MINNESOTA
QUALITY STAMPINGS IN SMALL QUANTITIES

If you write maker identify as IEN - 11553

**YOUR VOICE SPEAKS WITH AUTHORITY**

**For traffic, industrial emergencies, yard operation, construction**

- Completely portable
- Entirely self-contained
- Uses six ordinary flashlight batteries
- Battery life—120 to 150 hours in intermittent use
- Instant trigger action no warm up required
- Weight—5 lbs. 5 ozs.
- Horn diameter—8½ in.
- Range (depending on noise)—tested up to ¼ mile

STEWART SW WARNER

*Write for name of your nearest sales representative.*

**STEWART-WARNER ELECTRIC**
1828 West Diversey Parkway, Chicago, Illinois

If you write maker identify as IEN - 11554

*Armstrong's*

## VIBRACORK CUSHIONS VIBRATION

from Hydraulic Presses, Pumps, Compressors, and many other types of Machinery and Equipment

***. . . ACTUALLY FLOATS THE LOAD ON MILLIONS OF AIR CELLS!***

Vibracork is a resilient machinery isolation cork plate made of pure cork granules, compressed and baked under pressure.

**Convenient to stock** — Standard sheets, 12" x 36"; Standard density 2" and 3" thick; Heavy density, 1", 2" and 3" thick.

**Easy to use** — Can be cut to size on the job with an ordinary hand saw.

**Loading range** — Standard density, 1500# to 4000# per. sq. ft.; Heavy density, 5700# to 8500# per. sq. ft.

**Availability** — Immediate delivery. Korfund is sole distributor for the United States.

For installation data and further information, ask for Bulletin VC-500.

**THE KORFUND CO., INC.**

KORFUND VIBRATION CONTROL — SPRINGS — RUBBER — CORK

48-35 E. Thirty-second Place • Long Island City 1, N.Y

If you write maker identify as IEN - 11555

**MET-L-WOOD** METAL BONDED TO PLYWOOD

**Has Hundreds of Structural Uses in Modern Plants**

*To Name a Few:*

- Walls and Partitions
- Doors
- Counters and Shelves
- Traffic Panels
- Truck Bodies (Patented "Ribless" Construction)
- Truck Body Panels
- X-Ray Rooms
- Moisture-Vapor-Proof Rooms and Containers
- Decorative Finishes

Met-L-Wood stock panels and prefabricated units are a challenge to modern industrial engineers and designers because of their multiple possibilities in economical, structurally-sound designs in hundreds of varied uses. Best start toward thinking in terms of Met-L-Wood design opportunities is to send for the Bulletin described below . . . Met-L-Wood Engineering Service is available without obligation on specific problems.

**SEND FOR THIS BULLETIN ON MET-L-WOOD USES AND ADVANTAGES**

Quick facts, with illustrations and diagrams on Met-L-Wood applications, types, possibilities. Sent without obligation on request.

Met-L-Wood is metal bonded to plywood—permanently. Many metals, woods, thicknesses, shapes, finishes are available to meet YOUR requirements.

**MET-L-WOOD CORPORATION**
6735 West 65th Street • Chicago 38, Illinois
*"Met-L-Wood . . . opening new horizons to structural designers"*

If you write maker identify as IEN - 11556

Goes further!

- No waste
- Lasting "Tack"
- Full measure
- Stays Fresh
- Best buy for plant supply

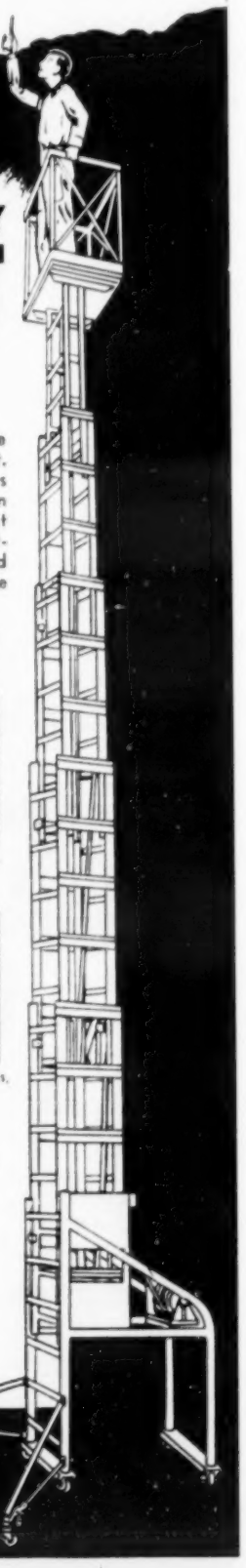
In single rolls, or 10-roll cartons — each roll wrapped in cellophane Jenkins Bros., (Rubber Div.), 100 Park Avenue, New York 17.

JENKINS Gold Seal Tape
FRICTION...RUBBER

MADE BY JENKINS BROS . . . MAKERS OF FAMOUS JENKINS VALVES

If you write maker identify as IEN - 11557

UP! UP! UP!
TO ANY DESIRED HEIGHT



EASILY...
SAFELY...
ECONOMICALLY

HI-LIFT
EXTENSION
SCAFFOLD

Models extend from 6 ft. 10 in. (can be made lower) to any desired height. Hand or electrically operated. Comes to you ready for work — no erection required, no loose parts. Built to meet individual requirements. Ideal for painting, lighting, cleaning, and all overhead maintenance. Pays for itself in time and labor saving.

MOST VERSATILE SCAFFOLD ON THE MARKET

Set up in aisles and work on both sides.

Resting on roof trusses.

Over machines in factories, in warehouses, bank cages, etc.

Straddle seats in theaters, auditoriums, etc.

Write for Complete Literature

ATLAS INDUSTRIAL CORP.
847 39th Street
Brooklyn 32, N. Y.

## NEW LITERATURE—Continued

Identify as IEN - 0747

**BLOWERS . .** Single and multistage units for air or gas in range from ½ to 7 lb. pressure and ½ to [illegible] hp. Bulletin B-6, 32 pages, presents catalog information and requirements for standard uses. Lamson Corp., Billings Blower Div., 303-5 Lamson St., Dept. C-16, Syracuse 1, N. Y.

Identify as IEN - 0748

**BOILERS . .** Package-type units have steam capacities from 4,000 to 30,000 lb. per hr. Construction details, specifications, controls in 16-page Catalog P-360. Combustion Engineering Inc., 200 Madison Ave., 17th Floor, New York 16, N. Y.

Identify as IEN - 0749

**ELECTRIC CABLE . .** Coaxial solid-dielectric cable and parallel-conductor TV lead-in wire are listed in selection tables by AN or Federal number and also by impedance in 28-page Catalog F-535. Federal Telephone & Radio Corp., Selenium-Intelin Dept., 102 Kingsland Road, Clifton, N. J.

Identify as IEN - 0750

**ELECTRIC CABLE . .** Self-supporting aerial cables have insulated aluminum conductors for 600 to 15,000-volt service. Dimensions, weights, electrical characteristics in 8-page Bulletin OK-1064. Okonite Co., 30 Canal St., Passaic, N. J.

Identify as IEN - 0751

**CONNECTORS . .** Matching tapers on terminal and socket engage in self-locking action for miniature pin and tab electric connectors. These are hardly larger than the wire itself. You may be interested in the pull-out strength and contact resistance data in 8-page Taper Technique bulletin. Aircraft-Marine Products Inc., 2102 Paxton St., Harrisburg, Pa.

Identify as IEN - 0752

**CONSTRUCTION . .** Steel wire and rope for prestressed concrete beams and structures is described in 16-page Catalog T-920 on size, strength, fittings, tensioning methods, properties, applications. John A. Roebling's Sons Inc., 612 S. Broad St., Trenton 2, N. J.

Identify as IEN - 0753

**PROCESS CONTROLS . .** Electronic indicating and recording control instruments for temperature, pressure, flow, level, humidity and time program. "Free-Vane" operating principle is described in 16-page Bulletin B-226 with models. Bristol Co., 107 Bristol Road, Waterbury 20, Conn.

Identify as IEN - 0754

**PROCESS CONTROLS . .** Service organization will design, install and train operators for automatic process controls. Eight-page brochure tells about it. C D C Control Services Inc., 402 S. Warminster Road, Hatboro, Pa.

Identify as IEN - 0755

**PNEUMATIC CONVEYOR . .** Equipment to handle products from abrasives to zinc oxide by pressure, vacuum or a combination of both. Bulletin 104, 8 pages, shows a number of examples with the idea of suggesting an application. Convair Corp., 714 Brookline Blvd., Pittsburgh 34, Pa.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11559

PAID NEWS ADVERTISEMENT BY CARBORUNDUM CO.

ABRASIVE WHEELS FOR CUTTING OFF...
Free booklet outlines advantages, lists recommendations

**Abrasive cutting off,** generally 12 to 20 times faster than sawing, produces closer tolerances and smoother, more finished cuts. And, as this booklet by CARBORUNDUM points out, subsequent finishing operations are often unnecessary.

**"Metallic Cutting Off with Abrasive Wheels"** is written to give you the facts you need to determine the type of cut-off machine and abrasive wheel which will do your jobs most economically. Especially if you now use abrasive cutting machines, you will find information in this booklet to help you improve performance and production.

**CARBORUNDUM** offers you a complete line of wheels for all types of cutting operations, from portable to fully automatic—resinoid bond wheels for dry cutting, rubber bond for wet cutting, and "MX" fibre-reinforced wheels for dry cutting in more severe operations. The booklet describes all of them—and their uses.

**Whatever you cut**—ferrous or non-ferrous metals in any shape or form, glass, porcelain, plastics, cemented carbides, hard rubber, etc.—you can count on abrasive wheels by CARBORUNDUM to do the job quickly and economically.

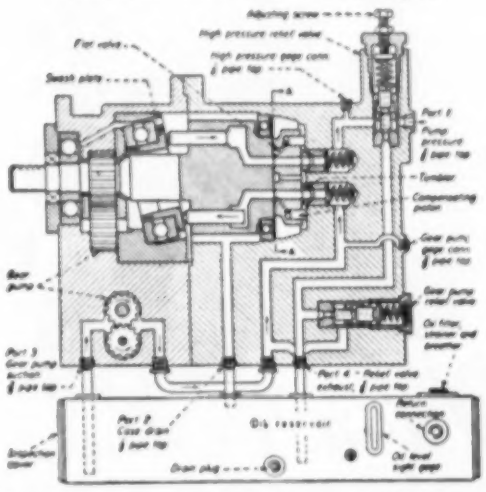
**Send for your copy** of this valuable booklet today. And call your CARBORUNDUM distributor or salesman for expert help with any cutting or grinding operation.

*"Carborundum" and "MX" are registered trademarks which indicate manufacture by The Carborundum Company, Niagara Falls, N. Y.*

THE CARBORUNDUM COMPANY
Niagara Falls, New York

If you write maker identify as IEN - 11560

HEAVY DUTY HYDRAULIC POWER PUMPS
Pressures to 3000 & 5000 psi



The Oilgear Company announces three new "Fluid Power" heavy-duty constant delivery axial piston pumps. Similar components have been tested and proven in more than 100,000 installations without a single failure on record. Features of these fluid power generators are: patented balanced small flat valves with controlled oil film between working surfaces; patented small one piece rolling pistons; patented quiet reverse flow relief valves; 100% supercharge that minimizes oil compression, prevents air entry and assures quieter operation. These units in pressures up to 3000 and 5000 psi are especially suited to heavy duty pushing, pulling, lifting, lowering and maintaining high static loads on large clamping rams; for use in the iron, steel, metal working, plastic, automotive, rubber, printing, lumber and textile industries. For illustrated descriptive and application data, write for Bulletin 46601. THE OILGEAR COMPANY, Dept. A, 1567 West Pierce Street, Milwaukee 4, Wisconsin.

If you write maker identify as IEN - 11561

HERE'S WHY
PUROX
Trade Mark
BLOWPIPES COST SO LITTLE TO USE AND MAINTAIN

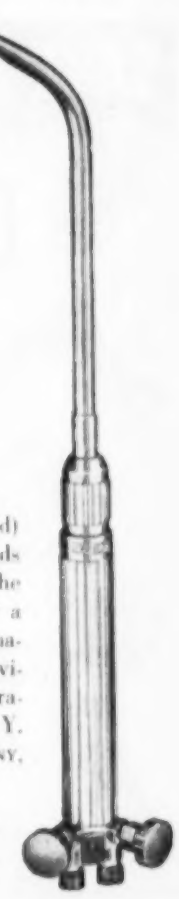
SELF-SEATING VALVES
Reseat scored valves when turned tight.

RUGGED HANDLE ASSEMBLY
Built for long, trouble-free service.

SLIP-FIT "O" RINGS
Perfect gas seals every time.

MIXER IN EACH HEAD
Resists backfires, eliminates burnouts.

SWAGED, PURE COPPER TIPS
Heads snap in handle. No wrench needed.

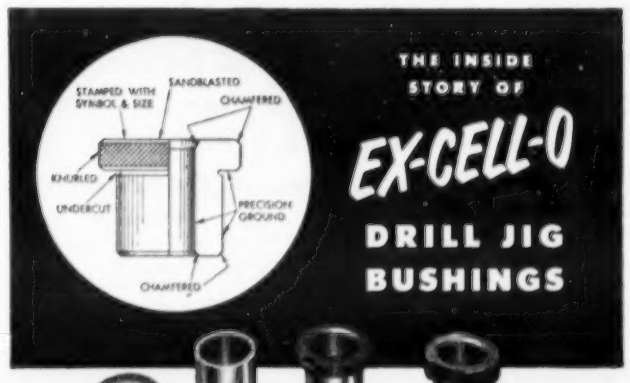


The Purox W-202 blowpipe (illustrated) is available with 13 standard welding heads and 3 multiflame heating heads, all of the snap-in type. Ask your LINDE jobber for a demonstration or write for further information. LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 E. 42nd St., New York 17, N. Y. In Canada: DOMINION OXYGEN COMPANY, LIMITED, Toronto.

get it from your LINDE jobber

The terms "Purox" and "Linde" are registered trademarks of Union Carbide and Carbon Corporation.

If you write maker identify as IEN - 11562



Here are a few good reasons why Ex-Cell-O Drill Jig Bushings last longer and perform better:

1. Premium grade tool steel is selected for wear resistance and heat treated to 62-64 Rockwell "C".
2. Every bushing must measure up to Ex-Cell-O precision standards, as well as to A.S.A. standards.
3. High finish is ground on inside and outside diameters, and under the head for perfect bearing.

To satisfy the needs of your purchasing and engineering departments ask for an adequate supply of Ex-Cell-O Bushing Catalogs.

EX-CELL-O CORPORATION
DETROIT 32, MICHIGAN

MANUFACTURERS OF PRECISION MACHINE TOOLS • CUTTING TOOLS • RAILROAD PINS AND BUSHINGS • DRILL JIG BUSHINGS • AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

51-54

If you write maker identify as IEN - 11563

# NOW A WIDE RANGE OF AIR PRESSES

*Cut Costs...*

These presses deliver from 4 to 28 times the air line pressure, cost from $29.50 to $135.00, and will pay for themselves many times over in faster, more uniform production on light skating, crimping, assembling jobs. Write for new catalog of air cylinders and other air-operated devises.

MEAD SPECIALTIES COMPANY

4114 NO. KNOX AVE., DEPT. EA-103, CHICAGO 41, ILL.

If you write maker identify as IEN - 11564

# SAVE on SMALL PARTS

**DOLLIN** Small Zinc DIE-CASTINGS

**1000 per lb. to 3 per lb.**

Produced *automatically* in *one operation* on special high-speed equipment. Cut piece-costs . . . make two or more parts as one . . . reduce machining operations. Send prints or samples for quotation. Small Parts Folder and Samples on request.

DOLLIN CORPORATION
630 So. 21st St., Irvington, N. J.

If you write maker identify as IEN - 11565

# WANTED

***Users of round leather belting to try Vulco-Flex V-Belting with this MONEY-BACK Guarantee***

No matter what kind of machines you operate...if you are now using round leather belting...test Gates Vulco-Flex V-Belting on one of your machines for 90 days. If you do not save take-up time, end slippage, save replacement time and dollars —the full price you paid for the test drive will be refunded.

You DO NOT change pulleys... Vulco-Flex is as easy to install as round leather belting.

Vulco-Flex has a maximum of 3% stretch...grips pulleys to end all slippage...oil and heat resistant... lasts 4 to 7 times longer than leather belting.

Prove to yourself—with a test drive —how Vulco-Flex will reduce your maintenance—up your production—save you money. Write us on your letterhead to have Gates Field Engineer in your area install test drive. Or simply fill out the coupon below and send it to us.

Gates **VULCO-FLEX V-BELTING**

**Coupon Brings Test Drive**

The Gates Rubber Co. Sales Division, Inc.
Denver 17, Colorado

Please have nearby Gates Field Engineer install Vulco-Flex test drive. If we are not satisfied after 90 days, you are to refund price paid for V-Belting.

AC-16

Firm Name_____

Individual_____

Address_____ City & State_____

## NEW LITERATURE—Continued

Identify as IEN - 0756

**PNEUMATIC CONVEYOR . .** Sealed pipes carry flour and other dry pulverized material from storage bin to point of use in an Airveyor installation. Diagrams show how in 16-page Bulletin AF-100, addressed primarily to the baking industry. Fuller Co., 853 Fuller Bldg., Catasauqua, Pa.

Identify as IEN - 0757

**COOLING . .** Water is no problem to the Fin-Fan air-cooled heat exchanger. It employs finned tubes and forced-draft fan to cool process liquids and gases to 5,000 lb. pressure and to 1,500 deg. F. One installation described in 12-page Bulletin FF-FD-0.001 handles 125,100,000 btu. per hour. Fluor Corp., 2502 S. Atlantic Blvd., Los Angeles 22, Calif.

Identify as IEN - 0758

**COUNTING . .** Actuating elements for electric counters are switches in rotary, reciprocal, linear-measuring, impact, floor-mat, and photoelectric designs. Descriptions and list prices in 4-page Bulletin ES-93. Production Instrument Co., 700-10 W. Jackson Blvd., Chicago 6, Ill.

Identify as IEN - 0759

**COUNTING . .** English-made revolution, stroke and linear measuring counters, bottle and case counters, ticket-printing units, special counting assemblies. Catalog 53, 16 pages. Trumeter Co., 1265 Broadway, Rm. 406, New York 1, N. Y.

Identify as IEN - 0760

**CRANES . .** Electric truck crane with 3-ton capacity at 7-ft. radius travels 3½ mph. with full load. Specification summary in 4-page "Type CX-4". Elwell-Parker Electric Co., 4060 St. Clair Ave., Cleveland 3, Ohio

Identify as IEN - 0761

**CUTTING TOOLS . .** Pocket catalog of 128 pages on milling cutters, counterbores, reamers, form tools gives list prices on standard tools and pictures on specials. Ask for Catalog 53. Falcon Tool Co., 20774 Ryan Road, Detroit 34, Mich.

Identify as IEN - 0762

**DISPENSING . .** Pump and meter combinations with hose and nozzle to dispense gasoline, also crank-operated pumps for gasoline, oil, solvents, some with tanks. Looselerf Catalog, "Gasboy", 12 sheets. Wm. M. Wilson's Sons Inc., 853 Wilson Ave., Lansdale, Pa.

Identify as IEN - 0763

**DRAFTING . .** Head, elbow and mounting mast of the company's Equipoise drafting machine move on shielded ball bearings. These and other construction points, standard scale reproductions, in 20-page Booklet A-2000. Charles Bruning Co., 4702 Montrose Ave., Chicago 41, Ill.

Identify as IEN - 0764

**DRILL JIGS . .** Catalog 8 has 138 pages of dimensions and specifications on drill jigs in 13 styles and 161 sizes. It also has full-size tracing templates on fixture clamps, jig feet, screws, studs, and other components. Siewek Tool Co., 2862 E. Grand Blvd., Dept. IEN, Detroit 2, Mich.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11566

# For Heavy Duty Nut-Running Jobs!

- easy to use—easy to handle
- motor won't stall from overloading
- full power in either direction
- no kick or twist to operator

**SIZE 34U**
For 1¼" Bolts

Size Square Driver .....1"
Weight .....32-1/2 lbs.
Length .....14-1/8"
Height .....10-3/16"
Side to Center .....2-3/8"
110 or 220 Volt Models AC-DC

I-R PRECISION-MADE MECHANISM produces 900 "rotary" impacts per minute. Speeds up dismantling and assembling of turbine and large pump casings, diesel engines, and other heavy duty nut-running jobs. Reduces time and labor to minimum!

.... *An Ingersoll-Rand Product*....

**Ingersoll-Rand**
11 BROADWAY, NEW YORK 4, N. Y.

ORIGINATOR OF IMPACTOOLS AIR AND ELECTRIC

If you write maker identify as IEN - 11567

# Revolutionary new Baker gas-O-matic fork truck saves money in 3 ways!

**40% less fuel...**

Tests by independent laboratories and industrial plants show gas consumption of about ½ gallon per hour—less than 60% as much as for conventional gas trucks. Economy results from low operating speed of engine, exclusive Baker variable voltage generator and efficient Baker drive motor.

**40% lower maintenance...**

No clutch or gear-shift, eliminating most common cause of gas truck breakdowns. Dependable electric drive and many new design features mean 40% lower repair costs and 40% less down time.

**50% longer life...**

Majority of GAS-O-MATIC parts are standard Baker electric truck parts. Government permits tax write off of electric trucks over twice as many years as for gas. With one engine replacement, GAS-O-MATIC should last 10 years or more.

*Get the whole story from your Baker representative or write for Bulletin 1344*

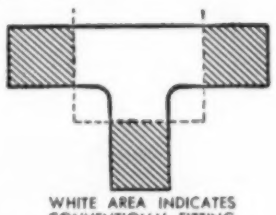
**THE BAKER-RAULANG COMPANY**
1226 WEST 80th STREET • CLEVELAND 2, OHIO
*The Baker-Lull Corp., Subsidiary, Minneapolis, Minn. Material Handling and Construction Equipment*

Baker industrial trucks

If you write maker identify as IEN - 11568

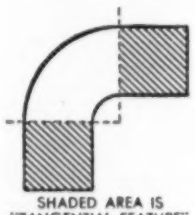
# How the *Speedline* "TANGENTIAL FEATURE" cuts stainless piping costs

Now you can save up to 50% on corrosion-resistant lines by using light wall stainless pipe and versatile *Speedline* Fittings.



WHITE AREA INDICATES CONVENTIONAL FITTING

The added straight section of corrosion-resistant *Speedline* Fittings permits attaching unions or flanges without fouling... reduces number of welds required... simplifies installation... eliminates angle joints.



SHADED AREA IS "TANGENTIAL FEATURE"

**SEND FOR LATEST INFORMATION**

Write a note on your company letterhead to get the complete story on the many cost-saving advantages of the *Speedline* System for process piping.

***Speedline* distributors are located in principal cities from coast to coast**

**HORACE T. POTTS CO.** *Since 1815*

534 Erie Avenue, Philadelphia 34, Pa.

If you write maker identify as IEN - 11569

SAWS GRATING 14 FEET PER MINUTE
CUTS CHANNEL IN 3 SECONDS . . .

# HIGH-SPEED . . LOW INVESTMENT ABRASIVE & FRICTION SAW

WRITE TODAY FOR FREE FOLDER

**NEW TY-SA-MAN 111-D SAVES HUNDREDS OF MAN HOURS A MONTH IN SOME INSTALLATIONS**

It's the only friction saw in its cost class . . . only machine giving long-stroke abrasive cutting. 111-D Model makes accurate cuts up to 24". 111-D (ER) Model makes up to 48" cuts. Cost in reach of any warehouse or fabricator.

TY SA-MAN Machine Co ; Knoxville 01, Tenn.

If you write maker identify as IEN - 11570

AA-267

IF you sell your products in rolls (like adhesive tape), or—if you use rolls in production (like printing or coating) then—**better rolls can build your profits** by reducing waste, by increasing production and by improving your products. Get the facts on Camachine roll slitters and rewinders, the **right** model for every material. Write today to

**CAMERON MACHINE COMPANY**
**61 Poplar Street • Brooklyn 1, N. Y.**

**Camachines**

If you write maker identify as IEN - 11571

**The vise that's a handy portable workbench**

**RIGID**

## New No. 40 Tristand Pipe Vise

Easily taken to the job—legs fold in and chain for carrying, tray quickly on and off. Roomy top has pipe rest and efficient benders; tray keeps tools handy—and also makes Tristand extra rigid, won't fold up in use! Tool-steel Longrip jaws—firm grip but easy on polished pipe and tubing. Yoke No. 40, (old TSY-2½) 2½"; chain No. 45 (old TSC-4) 4". Buy these handy worksavers at your Supply House.

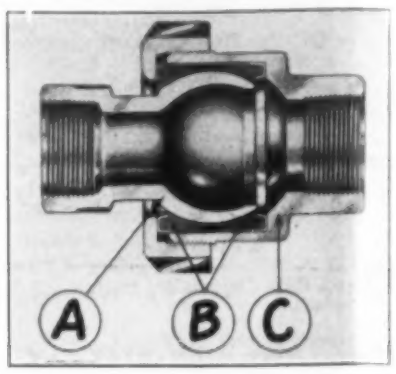
**THE RIDGE TOOL COMPANY • ELYRIA, OHIO • U.S.A.**

**RIGID**
**Work-Saver Pipe Tools**

If you write maker identify as IEN - 11573

## PIPE FITTING . . Ball joint for electrically insulated connection

**Source: BARCO MFG. CO.**
**502 N. Hough St., Dept. J-44, Barrington, Ill.**




**Bulletin 223**

Pipe lines leading to plating, cleaning and anodizing tanks are insulated electrically by application of this new ball swivel joint. It is available for pipe ranging from ¼ to 6 in., for temperature to 425 deg. F. and pressure to 300 lb. of steam. Standard construction is in malleable iron but the unit also is available in steel and other alloys and in flanged design in 4 and 6-in. sizes. Construction consists of the ball A, which rides in two molded non-conductive gaskets B in the threaded nut equipped socket C.

If you write maker identify as IEN - 11574

## HOSE . . Wire reinforced, ⅜ to 2 in., pressure to 1,500 pounds

**Source: QUAKER RUBBER CORP.**
**Comly & Tacony Sts., Philadelphia 24, Pa.**

**Multi-purpose design**

**Ironsides Utility** is a new hose to handle air, oil, water, gasoline, and for spray and hydraulic duty. It consists of an oil resistant tube, rayon braid, steel wire reinforcement and a neoprene cover. The wire is grounded to drain static. The cover is colored bright yellow for visibility in dark locations. Fittings can be specified.

If you write maker identify as IEN - 11575

## VALVE . . Solenoid operated for safety cutoff in liquid fuel lines

**Source: SKINNER ELECTRIC VALVE DIVISION**
**93-97 Edgewood Ave., New Britain, Conn.**

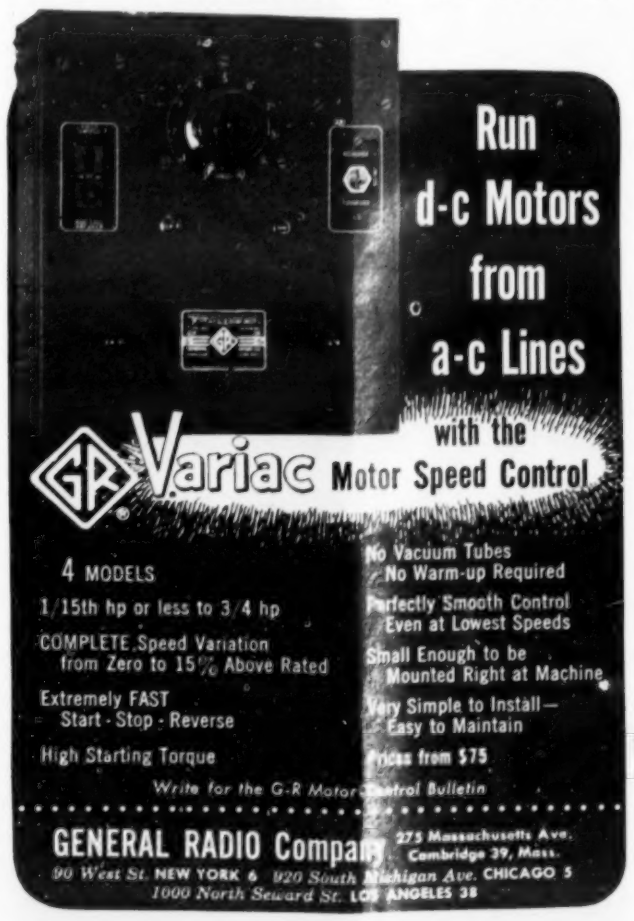
**Closes bubble tight**

**The solenoid** in this new Series V61 valve holds the valve open as long as its circuit remains closed. It permits a spring to return the stem to closed position when the circuit is opened. Solenoid operation is on 6 to 12-volt dc. The valve is available with 300 and 250-lb. pressure ratings and orifices that measure 0.125 and 0.136 inch.

**Pipe connections** are ¼ inch. Dimensions are 2¼ in. in diameter by 2¾ in. in height. Weight is 1½ pounds. Body and internal parts are made of stainless steel.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11576




If you write maker identify as IEN - 11577

## you play it SAFE with Safety-Pulls

Just as important as the time-and labor-saving advantages of Coffing Safety-Pull Ratchet Lever Hoists is the way each one protects your men from injury . . . your equipment from damage. Here's why:

Load cannot slip even if handle is accidentally released — because of dual Ratchet and Pawl principle, developed by Coffing and an outstanding Coffing advantage for over a quarter of a century.

Load is held positively at all times — there is no friction brake to slip or freeze.

Hooks will not break or straighten out.

"Safety-valve" handle will bend before any other part of hoist gives way.

Safety-Pulls are single-chain tested at 100 percent above warranted, rated capacity.

Find out more about how Coffing Safety-Pulls provide extra protection on the job. Write for Bulletin P10SP.

**Coffing Safety-Pull Ratchet Lever Hoists**
**2 coil chain models, ¾ and 1½ tons**
**10 roller chain models, ¾ to 15 tons**

**COFFING HOIST CO., Danville, Illinois**
**ORIGINATORS OF RATCHET LEVER HOISTS**
**Quik-Lift Electric Hoists • Hoist-Alls • Mighty-Midget Pullers • Spur-Geared Hoists • Differential Chain Hoists • Load Binders • I-Beam Trolleys**

If you write maker identify as IEN - 11578

**JOHN CRANE CAN SUPPLY THE RIGHT SHAFT SEAL FOR YOUR APPLICATION!**

"John Crane" offers a thoroughly comprehensive line of mechanical seals to meet every use and service condition. For new or old equipment . . . from pumps, agitators and speed reducers to washing machines and garbage disposal units . . . for handling water, oil, gas, chemicals or corrosives . . . from vacuums up to 1000 p.s.i. pressures . . . temperatures to 485° F.

*Free!* CATALOG!

Write today for our informative, fully illustrated catalog containing concise technical data and service recommendations on all John Crane Seals. Crane Packing Co., 1815 Cuyler Ave., Chicago 13, Ill.

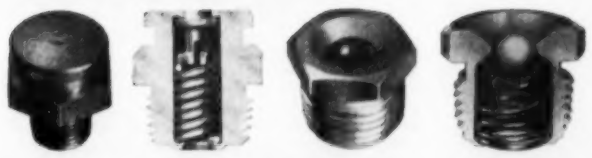
**JOHN CRANE CRANE PACKING COMPANY**

If you write maker identify as IEN - 11579

**There's All the Difference in the World in Grease Fittings!**

*Specify* **UNIVERSAL'S**

**New Giant Button Head or Flush Type Fittings**



Streamlined One-Piece Design | Giant Button-Head Fitting, Plug Check | Streamlined One-piece Design | Giant Flush-Type Fitting, Ball Check

Note the practically indestructible one-piece construction, streamline design, positive seating of ball or plug check. Special spring design assures maximum clearance for free passage of grease. For a really modern, improved grease fitting, specify UNIVERSAL. Application engineering available promptly on request. Write now for complete information.

**UNIVERSAL LUBRICATING SYSTEMS, INC.**
**785 ALLEGHENY AVE., OAKMONT, PA.**

If you write maker identify as IEN - 11580

For HIGHEST ELECTRICAL & MECHANICAL Efficiency!

New

JONES 2400 SERIES PLUGS & SOCKETS

Improved Socket Contacts. Four individual flexing surfaces. Positive contact over practically their entire length.

Both Plug and Socket Contacts mounted in recessed pockets greatly increasing leakage distance, INCREASING VOLTAGE RATING. Plug and Socket Contacts cadmium plated. Add to appearance of your equipment. Interchangeable with Jones 400 Series.

Ask for Catalog 18. Complete line Jones Plugs, Sockets, Terminal Strips.

P-2406-CCT Plug — with cable clamp in top.

S-2406-SB Socket with shallow bracket for flush mounting.

Send for complete data on this new basic improvement!

Jones HOWARD B. JONES DIVISION
CHICAGO 24, ILLINOIS

If you write maker identify as IEN - 11581

HOW TO SAVE MONEY ON STEEL SHELVING

The real cost of shelving is the erected cost

That's why highest quality DeLuxe shelving costs you less. DeLuxe precision shelving has *fewer parts*, uses *80% less bolts* and is the *only shelving* available that is *100% adjustable*. It's quicker, less costly to install—easier to adjust.

Wherever you are, a DeLuxe factory representative is available to give you a complete engineering, planning and layout service without obligation.

Write for a free catalog now, while your mind is on shelving.

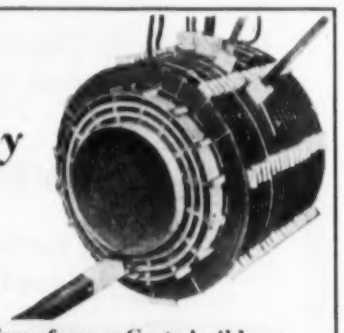
DELUXE METAL FURNITURE CO.
303 Struthers St., Warren, Pa.

DeLuxe

For over 25 Years Manufacturers of.
Storage Shelving • Library Shelving • Storage Cabinets • Shop Equipment

If you write maker identify as IEN - 11582

class h insulation *by* National Vulcanized Fibre Co.



used by Pennsylvania Transformer Co. to build new, safe, and reliable Sealed Dry Type Transformers

Using Class H Insulation (Phenolite silicone-fiberglas laminate), the Pennsylvania Transformer Co. (a McGraw Electric Co. Div.) builds Sealed Dry Type Transformers having many superior and safe features. The Class H Insulation eliminates hazards of fire and explosion, permits up to 50 per cent weight reduction, makes possible efficient operation in humid atmosphere, reduces maintenance, allows operation at high temperatures, and permits frequent overloads. Perhaps you have an insulating problem which we can help you solve . . . economically. Write us—our engineering service is immediately available.

National Laminated Plastics
nationally known—nationally accepted

NATIONAL VULCANIZED FIBRE — A tough, horn-like material with high dielectric strength. Excellent machinability. Sheets, Rods, Tubes, Special Shapes.

PHENOLITE Laminated PLASTIC — Good electrical insulating material with great mechanical strength; moisture resistant. Sheets, Rods, Tubes, Special Shapes.

NATIONAL VULCANIZED FIBRE CO.
Wilmington, Delaware — Offices in Principal Cities
Since 1873

## NEW LITERATURE—Continued

Identify as IEN - 0765

**DRILLING TOOLS** . . Portable electric drills, tappers, screwdrivers, impact wrenches, saws, sanders, grinders, polishers, along with stands, tools, attachments and accessories, are presented in new 40-page Catalog 39-A. Thor Power Tool Co., 173-77 N. State St., Aurora, Ill.

Identify as IEN - 0766

**VARIABLE SPEED DRIVE** . . Hydraulic coupling with an adjustable scoop tube is the basis for the company's Gyrol fluid drive. Twenty-four page Bulletin 9319 covers models from 100 to 2,500 hp. with speeds to 1,800 rpm., includes selection charts and an operating schematic. American Blower Corp., 8111 Tireman Ave., Dept. IEN, Detroit 32, Mich.

Identify as IEN - 0767

**FEEDING** . . Stand-mounted tank with constant-head differential arrangement to feed liquid at a constant rate of gravity flow. Bulletin, "Liquifeeder", 2 pages. Hankison Corp., 184 Biltmore Bldg., Pittsburgh 16, Pa.

Identify as IEN - 0768

**FILTERING** . . Replaceable cartridge in the Micro-Klean liquid filter has coarse openings in the exterior surface and progressively finer openings toward the center. Models handle 1.8 to 900 gpm. Bulletin MK-0553, 12 pages. Cuno Engineering Corp., 41 Wolfson St., Meriden, Conn.

Identify as IEN - 0769

**FILTERING** . . Automatic machine employs a disposable-belt filter element to remove solids from liquids such as coolants, spray-booth water. How it works and sizes are given in 8-page "Delpark Bulletin". Industrial Filtration Co., 253 Industrial Ave., Dept. 195, Lebanon, Ind.

Identify as IEN - 0770

**GEARS** . . Aircraft gears are illustrated in new 20-page brochure along with the equipment for which they were designed and accompanying notes on the company's production facilities. Ask for "Precision Gears". Precision Gears & Products Inc., 130-34 Iowa Ave., Paterson, N. J.

Identify as IEN - 0771

**HARD FACING** . . Arc-welding electrodes for hard surfacing application are summarized in a chart that forms part of new 20-page Bulletin 466. The literature also gives instructions, a description on the method, details on 15 electrodes. Lincoln Electric Co., Box 3035-A, Cleveland 17, Ohio

Identify as IEN - 0772

**HARD FACING** . . What metals can be hard faced, comparison between arc and torch applications, standard and special procedures, an application selection table, technical data on 10 manual rods and electrodes are in 52 page "Hard Facing Alloys" catalog. Mir-O-Col Alloy Co., 312 N. Ave. 21, Dept. IEN, Los Angeles 31, Calif.

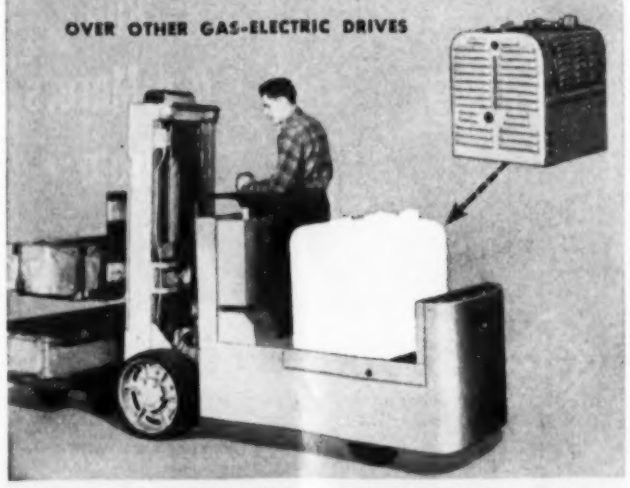
Identify as IEN - 0773

**LIQUID HEATING** . . Package-type electric units to heat water, oil, steam, air, gas under thermostat control. Ratings are 1 to 100 kw. Uses are shown in 8-page Bulletin 701. Edwin L. Wiegand Co., 7505 Thomas Blvd., Pittsburgh 8, Pa.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11583

INTERCHANGEABLE READY-POWER OFFERS 4 IMPORTANT ADVANTAGES OVER OTHER GAS-ELECTRIC DRIVES



1 Only Ready-Power Units are *interchangeable* for quick maintenance . . . and full-time truck operation.

2 Ready-Power is backed by over 25 years of experience.

3 Only Ready-Power offers Diesel-Electric power for industrial trucks.

4 Only Ready-Power offers a full range of gas-electric and Diesel-electric units.

Remember . . . Your Truck Is No Better Than Its Power!

CONTINUOUS-DUTY POWER UNITS

The READY-POWER Co.
3830 Grand River Ave., Detroit 8, Michigan
Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electric Power Units for Industrial Trucks

If you write maker identify as IEN - 11584

A-1035

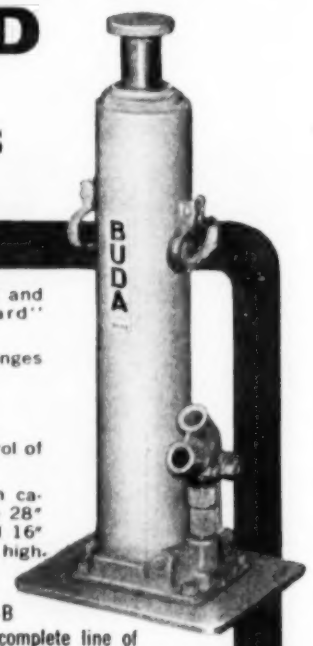
EASTON Furnace Cars

EASTON experience covers small and large capacity furnace cars for every requirement, including electric self-propelled cars for automatic continuous heat treating systems.

EASTON CAR & CONSTRUCTION CO. • EASTON, PA.
NEW YORK • PHILADELPHIA • PITTSBURGH

If you write maker identify as IEN - 11585

2-SPEED HIGH-LIFT HYDRAULIC JACKS



- Use "fast" speed for light and medium loads; "standard" speed for capacity loads
- One simple adjustment changes lifting speed
- One-man operated—easily portable
- Operator has positive control of lowering under load
- Available in 25 and 50-ton capacities. 25-ton models are 28" and 22" high with 22" and 16" lifts; 50-ton model is 26" high with 20" lift.

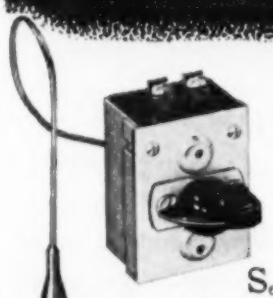
Write for new Bulletin 1515-B and full details on BUDA's complete line of mechanical and hydraulic jacks. "A jack for every job."

BUDA

THE BUDA COMPANY • Harvey, Illinois

If you write maker identify as IEN - 11586

New Snap Action Thermostat



• High Capacity
• Small Size
• Low Cost

Series F "Space Saver" thermostats provide high capacity . . . up to 5000 watts, in limited installation space . . . length 2¾", width 1 11/16". Contact mechanism is single pole, double break, of snap action type—actuated by expansion and contraction of a stable liquid which transmits motion to an expansible diaphragm. Series F thermostats are designed for use where the manufacturer normally supplies dial. However, standard dials are available. Standard shaft ¼" diameter flatted to .156".

RATINGS

Minimum Temperature 40°F
Maximum Temperature 550°F

Standard Ranges:
40°—100°F 50°—250°F
60°— 90°F 150°—350°F

Special ranges to specification
Screw type or Ark-Les terminals

Motor Rating:

| | Running | Locked |
|---|---|---|
| Volts | Amp. | Rotor |
| 120 | 10.2 | 61.3 |
| 240 | 6.5 | 39.0 |

Contact Rating:
22 amp., 120-240 Volt, A.C. only non inductive

Descriptive folder #3259 sent on request.

THE WILCOLATOR COMPANY
1001 Newark Avenue, Elizabeth, N. J.

*If you write maker identify as* IEN - 11587

# Quick as a wink measure both AC and DC

WITH A COLUMBIA TONG TEST AMMETER

**(Voltage attachment available)**

- Both AC and DC ampere readings are made instantly and accurately without breaking circuit or scraping insulation
- Operated with one hand by merely clamping tongs around conductor
- Cannot burn out
- Scale ranges up to 1000 amperes AC or DC
- Voltage attachment reads up to 600 volts
- Five types to accommodate cables up to 3⅞", bus bars up to 4½"x½"

*Write for Tong Test Bulletin IQ-400*

COLUMBIA ELECTRIC MFG. CO.
4519 Hamilton Ave., Cleveland 14, Ohio

---

*If you write maker identify as* IEN - 11588

1. Taking a section from an OK bedway

2. Making it into a "tool bit"

3. Then cutting metal with it (1045 cold rolled steel)

**The Gisholt Machine Co., Madison, Wisconsin, who use Ohio Knife bedways exclusively on their ram and saddle type Turret Lathes, made the above dramatic test for one of their customers. RESULT—another sale of a famous Gisholt Turret Lathe.**

This super uniform hardness on the wear surfaces to a depth of 3/16" (64-66 Rockwell "C") is the reason why more and more OK ways, gibs, races, etc., are being specified on new equipment and used as replacements where former parts have failed. OK ways are practically wear proof assuring constant accuracy throughout the life of your machine. Enjoy with many prominent machine tool builders and users, the long wearing, supreme accuracy, super hardness of OK ways. Many sizes, shapes, etc., available, or made to your specifications.

OK wear strips are now available in welded Ampco bronze.

(Reg. U. S. Pat. Office by Ampco Metal Inc.)

Manufacturers for the Metal Working Industry of:

SLITTER KNIVES · SHEAR BLADES · ROTARY SHEAR KNIVES
HARDENED SPACERS · HARDENED WAYS · GIBS
BALL RACES · BRONZE WAYS · WEAR STRIPS

*Write for comprehensive Bulletin to Dept. J*

THE OHIO KNIFE CO.
CINCINNATI 23, OHIO

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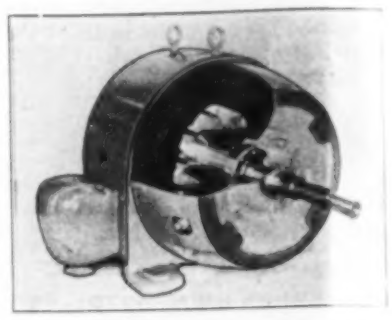
*If you write maker identify as* IEN - 11590

## MOTOR . . Induction design to mount and drive a centrifugal pump

**Source: U. S. ELECTRICAL MOTORS INC.**
**Box 2058-A, Terminal Annex, Los Angeles 54, Calif.**



**Lubriflush lubrication**

**Rating** is 60 hp. for this new close coupled induction motor. It is known as Type SCB. It includes a Style "C" registered mounting bracket and a step shaft with special diameter, shoulder and tapped hole for a centrifugal pump casing and its impeller. Finished surface diameters are ground for precision assembly and to seal against leakage.

**The ball bearings** in the motor are grease lubricated and are designed to permit mounting horizontally or at any intermediate angle. The bearings also take thrust load from the pump. The solid closed flange prevents entrance of the pumped liquid into the motor. A corrosion resistant bronze slinger, mounted on the shaft, assists in the sealing action.

---

*If you write maker identify as* IEN - 11591

## PLASTIC . . Silicone base resin, a vehicle for outdoor paints, varnishes

**Source: DOW CORNING CORP.**
**P. O. Box 592-A, Midland, Mich.**

**Technical data upon request**

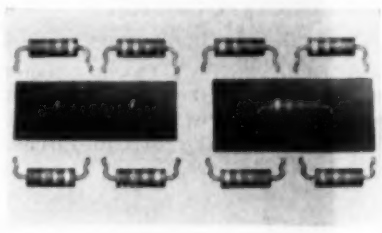
**Resin XR-807** is a new silicone-alkyd resin, drying-oil modified and containing 25 per cent silicone. It will air dry tack free when catalyzed. It can be pigmented in conventional manner or used in a clear varnish. Paint and varnishes, based on the material, can be air dried or baked. In the former case, they exhibit excellent weather and sunlight resistance. Baking brings out the heat resistant characteristic of silicone paints.

---

*If you write maker identify as* IEN - 11592

## RESISTOR . . Midget unit with leads for use in printed circuits

**Source: STACKPOLE CARBON CO.**
**1942 Tannery St., St. Marys, Pa.**



**Samples on request**

**New design** of the company's standard ½-watt fixed composition resistor includes formed and trimmed leads to assist in handling the resistors when they are being assembled on standard 0.062-in. printed circuit bases. The leads are hot tin dipped and are cut and formed for a tight "spring fit" to extend through the printed circuit base far enough for soldering. The units snap into position. No additional operation is required for correct assembly.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

---

*If you write maker identify as* IEN - 11593

# BIN STUCK LATELY?

*Loosen it Up*—with a CLEVELAND AIR Vibrator
Write For Our New Catalog No. 109

THE CLEVELAND VIBRATOR CO.
2736 Clinton Avenue • Cleveland 13, Ohio

---

*If you write maker identify as* IEN - 11594

# FREE

## NEW EXHAUST FAN CATALOG

Here is valuable data on how to plan effective exhaust fan installations, plus complete specifications of Emerson-Electric Exhaust Fans. Send today for Bulletin No. 743.

THE EMERSON ELECTRIC MFG. CO.
St. Louis 21, Mo.

EMERSON ELECTRIC
FANS • MOTORS · APPLIANCES

---

*If you write maker identify as* IEN - 11595

SEND FOR THIS NEW BULLETIN

## *Improved Method Centrifugal* SPRAY DRYER *and* CONCENTRATOR*

*CONTRACT DRYING*

*We invite inquiries for Contract Drying in our fully equipped Stainless Steel Plant in Chicago. Shipments can be made direct to our Railroad Switch Track or Truck Docks.*

**THE DRYING AND CONCENTRATING COMPANY DRYER**

*Improved method for* **DEHYDRATING**

Solutions, emulsions and materials which can be handled in a liquid form including:

**Chemicals**
**Pharmaceuticals**
**Milk Products**
**Blood or Blood Plasma**
**Soups, Vegetables, etc.**

This complete spray drying plant employs a unique centrifugal-type spray head, and consists of a Drying Chamber, Concentrator, Air Heating Unit, Air Filter, Air Supply Fan, Powder Cooling and Sanitary Pumps with variable speed drives for handling the liquid material and controlling the moisture.

***CONCENTRATOR AVAILABLE SEPARATELY**

The Concentrator can be operated as a separate unit for reducing liquid products to almost any desired degree of concentration, almost instantaneously, retaining neutral flavors and vitamins.

*Write for New FREE Bulletin* 265

DRYING and CONCENTRATING CO.
332 SOUTH MICHIGAN AVENUE, CHICAGO, ILLINOIS

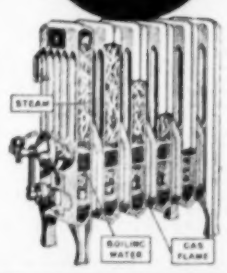
---

*If you write maker identify as* IEN - 11596

## CLOW GASTEAM RADIATORS

*Steam Heat . . . Where You Want It . . . When You Want It!*

Constantly opening doors can make your office a cold, inefficient working spot this winter unless properly heated. The best answer is a Clow Gasteam Radiator—an independent unit that makes its own steam heat with gas. No boiler or water connections needed. Space-saving unit provides comfortable, evenly distributed warmth economically over a large area. Write now for all facts.




Steam rises inside radiator from boiling water heated by enclosed gas burner.

*Available for City, Butane or Propane Gas*

JAMES B. CLOW & SONS
201-299 N. Talman Ave., Chicago 80, Ill.

If you write maker identify as IEN - 11597

# Pre-Cut to Save Time!

## SPRING-FELT

Slashes production cost when assembly calls for "same-size" padding, gasketing, anti-scratch surfacing, anti-rattle protection . . . pressure-sensitive Spring-Felt pre-cut to length you need, using our new segmenting process.

**Better Quality . . . In Less Time**

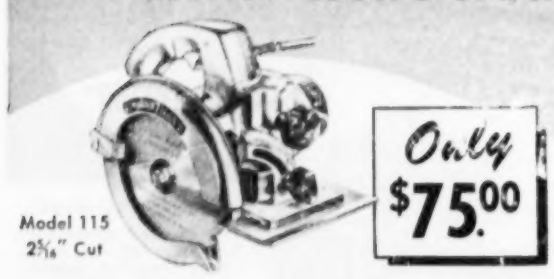
Makes good jobs better! Sticks with light finger pressure! Lasts and lasts! Impregnated and unimpregnated types. Pressure-sensitive or solvent-reactivated adhesive on one side. Thicknesses: 1/64", 1/32", 1/16", 1/8", 1/4". Widths: 1/8" to 36". Uncut or cut, as desired.

*Write today for free Bulletin 501*

**Spring Packing Corporation**
332 South Michigan Avenue • Chicago 4, Illinois

If you write maker identify as IEN - 11598

# New! Porter-Cable 7-in. "CONTRACTOR'S SPECIAL"




Model 115
2 5/16" Cut

## Rips 8 feet in 7½ seconds!

In a recent series of ripping tests comparing leading 7-inch saws, Porter-Cable's new "Contractor's Special" turned in this amazing speed record . . .

18.6% faster than Saw A
41.7% faster than Saw B
51.6% faster than Saw C
38.7% faster than Saw D

Regardless of the depth of cut or type of wood used, the new "Contractor's Special" in every instance finished the cut far faster than any of the saws tested. For example, on ¾" Fir Plywood, the "Contractor's Special" averaged 7.5 seconds per 8-foot cut!

See the new 7-in. "Contractor's Special" at your Porter-Cable dealer's. Or write for complete specifications and performance data.

**PORTER-CABLE MACHINE CO.**
1210 N. Salina St., Syracuse 8, N. Y.

Porter-Cable
Quality Electric Tools

*Manufacturers of SPEEDMATIC and GUILD Electric Tools*

If you write maker identify as IEN - 11599

# SENSITIVE, PRECISE PRESSURE-VACUUM CONTROLS

TYPE G9

The pressure vacuum control illustrated is an accurate, highly sensitive, precision-built unit. It may be had with an internal or external, calibrated or uncalibrated adjustment. It is watertight unless the adjustment is external.

It is designed for applications requiring constant repeatability of any on-off differential between .2" and 10" w.c. For full details send for bulletin #5-1.

**UNITED ELECTRIC CONTROLS COMPANY**
80 School Street, Watertown, Mass.

STANDARD & SPECIAL THERMOSTATS & PRESSURE SWITCHES

# NEW LITERATURE—Continued

Identify as IEN - 0775

**LUBRICATING** . . Colloidal graphite, molybdenum disulfide, vermiculite and zinc oxide are base materials available in 37 forms. Properties in 4-page "dag Dispersions". Acheson Colloids Co., 2000 Washington Ave., Port Huron, Mich.

Identify as IEN - 0776

**MAGNESIUM** . . Reduce weight of equipment and products by using magnesium alloy plate and sheet, urges 4-page folder, "Rolled Magnesium", which compares gauges required for equal stiffness in sheet magnesium, aluminum, brass and steel. It also compares relative strength and stiffness. Brooks & Perkins Inc., 1978-82 W. Fort St., Detroit 16, Mich.

Identify as IEN - 0777

**METAL PARTS** . . Wire forms, stampings, deep drawings to specification are the scope of the company's production service. Illustrated facilities in 24-page brochure. Eastern Tool & Mfg. Co., 3 Montgomery St., Belleville, N. J.

Identify as IEN - 0778

**METAL STRIP** . . And wire to specification in limited quantities to match composition or size requirements. Steps from melting to rolling or wire drawing are shown in 16-page pocket bulletin, "Precision Manufacturing Services". Hamilton Watch Co., 753 Columbia Ave., Lancaster, Pa.

Identify as IEN - 0779

**METAL TREATING** . . Material forms a zinc-phosphate coating on steel surfaces prior to painting. It promotes adhesion of the paint and protects the painted surface from electrochemical corrosion. "CrysCoat HC", 12 pages. Oakite Products Inc., 116-A Rector St., New York 6, N. Y.

Identify as IEN - 0780

**METERS** . . Manually-operated indicator instruments for temperature, conductivity, pH are the subject of 24-page Catalog ND-42 which shows schematic circuit diagrams for measuring these variables. Leeds & Northrup Co., 4934 Stenton Ave., Philadelphia 44, Pa.

Identify as IEN - 0781

**FLOW METERS** . . How the company's Fiorator meter works, advantages of variable-area principle, limitations, effect of pulsating flow, manufacture of precision-shrunk glass tube, are described in 16-page Catalog 10-A-10. Fischer & Porter Co., 15 Jacksonville Road, Hatboro, Pa.

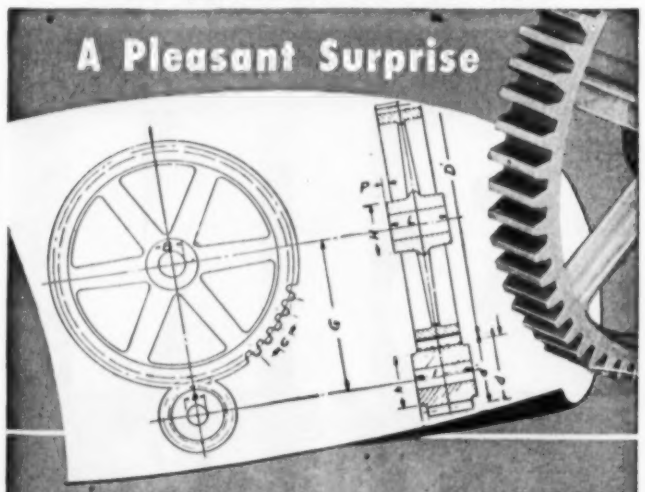
Identify as IEN - 0782

**MOTOR CONTROL** . . Starters for 2,200 to 5,000-volt squirrel-cage, wound-rotor and synchronous motors are described as to construction and protection features in 12-page Bulletin 14-B-6410B. Allis-Chalmers Mfg. Co., 909 S. 70th St., Milwaukee 14, Wis.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11600

# A Pleasant Surprise



Anyone who feels that a gear is a gear has a pleasant surprise awaiting him at Earle.

Here, we've found that we've always been able to add something *extra* to a gear—in manufacture, performance, engineering. As a matter of fact, we've been doing this for nearly half a century—giving the *critical* customer precisely the kind of gears he wants.

Why not become one of that special group which has learned that gear value can be determined—point by point? THE EARLE GEAR & MACHINE CO., 4707 Stenton Ave., Philadelphia 44, Pa.

It's good business to do business with EARLE.

EARLE GEARS

If you write maker identify as IEN - 11601

TRY THIS PROVED WAY TO BIGGER PROFITS

# Cost Cutting Automatic Electric Trucks

One man with Automatic Transporter handles 4000 lb. loads (manually he handled only 1500 lbs.)—50% faster! Saving two-thirds in time and costs for Continental Gin Machinery Co., Alabama.

When you take more time to do a job than you'd have to with *really modern* equipment, your costs, too, are higher—your profits less! That's why so many leading firms (as in application shown on this page) are switching to modern Automatic Electric Trucks.

You see, Automatic makes a truck for practically every kind of materials handling job...to do *that* specific job at low cost—profitably! Thus your Automatic truck is never *under*-powered and inefficient nor *over*-powered and costly to operate. It's "keyed-to-the-job" for maximum efficiency, minimum cost!

For full details write . . . **Automatic**

109 W. 87th St., Dept. T-3, Chicago 20, Ill.
World's Largest Exclusive Builder of ELECTRIC-DRIVEN INDUSTRIAL TRUCKS

If you write maker identify as IEN - 11602

# CUT COST with FLEXAUST*

SIZES
1¼ in. ID
to 36 in. ID

the high-quality spiral-wire reinforced hose *for* Fume exhaust / Dust or chip collection / Ventilation / Movement of materials

**FLEXAUST** enables you to cut hose costs because it's:
**EASY TO INSTALL** – Anyone can install FLEXAUST quickly.
**DURABLE** – Highly resistant to abrasion, aging, corrosion, moisture, chemical deterioration, flexing fatigue.
**LIGHT** – Weighs only ⅓ as much as comparable metal pipe.
**HIGHLY FLEXIBLE** – Maintains large sections on sharp bends; no kinking, no flattening.
**STRONG** – Bonded, double ply, double overlap construction.
**AIRTIGHT** – Ideal for either pressure or suction.

*For details on sizes, coatings, accessories, flow characteristics, write for Catalog 35.*

*Trade-marks

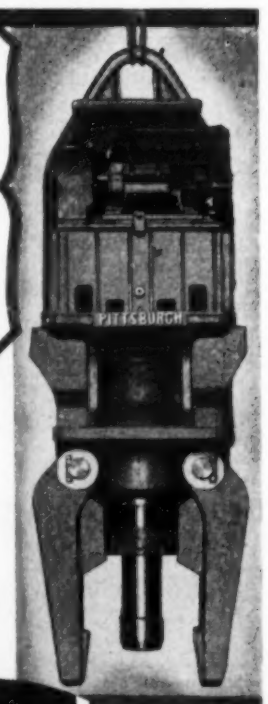
THE FLEXAUST COMPANY
Dept. IE-10 100 Park Avenue, New York 17, N. Y.
Formerly American Ventilating Hose Co.

FLEXAUST* PORTOVENT* BLOFLEX*

If you write maker identify as IEN - 11603

# PORTABLE INGOT STRIPPER

*can do your job*



- MORE ECONOMICAL
- MORE FLEXIBLE

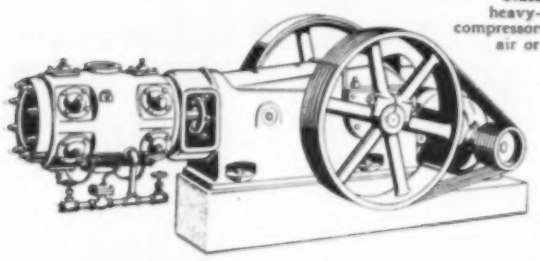
*than conventional equipment*

Write today for complete technical data

**pittsburgh** ENGINEERING & MACHINE CO.

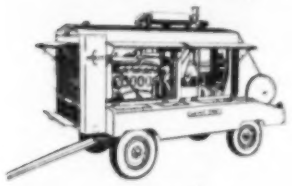
316 FARMERS BANK BLDG., PITTSBURGH 22, PA. • PLANT AT GLASSPORT, PA.

If you write maker identify as IEN - 11604



Class ES, heavy-duty compressors for air or gas.

## Dependable, low-cost AIR POWER for every industrial need



Also, a complete line of portable compressors

Ingersoll-Rand air compressors are known the world over for lasting dependability and economy of operation.

Whatever the job – if it calls for *air power*, we can meet your exact requirements, with substantial savings in time, effort and expense.

**Ingersoll-Rand**
11 Broadway, New York 4, N. Y. 708-1

CONDENSERS • CENTRIFUGAL PUMPS • DIESEL AND GAS ENGINES
COMPRESSORS • AIR AND ELECTRIC TOOLS • ROCK DRILLS • TURBO BLOWERS

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If you write maker identify as IEN - 11605

HHB offers many exclusive advantages in..

# Receptacles & plugs

*Pressurized & Waterproof*
**RECEPTACLES**
*Cable Type*
**RECEPTACLE & PLUG**
*Waterproof* **CAPS**
*Special Waterproof*
**CABLE CLAMPS**

*High Voltage*
**RECEPTACLE & PLUG**
*Capacitor Type*
**RECEPTACLE**

New catalog literature is available on the outstanding, quality line of RECEPTACLES & PLUGS offered by HHB.

These quality parts are available in standard sizes, and arrangements, (AN types), or special arrangements to meet your requirements.

We invite inquiries . . . no obligation.

**H. H. BUGGIE Inc.**
TOLEDO 4, OHIO

Skilled in Electronic Component Parts
RESEARCH • DESIGN
ENGINEERING
MANUFACTURING

*Sales Engineers in All Principal Cities*

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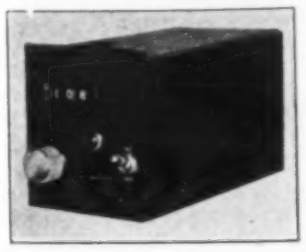
If you write maker identify as IEN - 11607

## COUNTING .. Servo operated unit reads process variables numerically

Source: STREETER-AMET COMPANY
4103 Ravenswood Ave., Chicago 13, Ill.



Geared to servo

Numerical values of fast changing variables are indicated by this new servo operated instrument. It will indicate any analog quantity that can be converted into a corresponding voltage through various sensing devices. It reads one part in 1,000 to 5,000. The unit is featured by its fast response and its continuous balance type of servo operation in which the voltage, converted through the sensing device, is fed into an amplifier to drive the servo motor.

**Installation** can be made at any distance from the point of measurement. A selector switch can be added for sequence connection to various test points employing the one instrument. Overall dimensions of the unit shown are 4 by 8 by 5 inches. The company has prepared literature under the title, "Miniature Numerical Indicator".

---

If you write maker identify as IEN - 11608

## BRAZING .. Non-toxic silver flux for metals, except aluminum, magnesium

Source: SUPERIOR FLUX & MFG. CO.
1300 Ontario St., Dept. X-6, Cleveland 13, Ohio

**Excess flux washes off**

**Special No. 6** is a new solder paste flux. It melts at 850 deg. F. and can be employed at temperatures to 1,600 deg. F. It is non-corrosive, contains no free fluorides and does not give off fumes. It is alkaline in nature, soluble in water, retains its paste like quality in storage. The molten material covers a bright clean metal surface with a persistent liquid film to exclude air and metal oxides. It exerts excellent capillary action on the molten brazing alloy.

---

If you write maker identify as IEN - 11609

## SCREW DRIVING .. Pneumatic tool, reversible design for 1/4 in. screws

Source: THOR POWER TOOL CO.
173-77 N. State St., Aurora, Ill.

Thor No. 2 line

Screws and threaded fasteners can be driven or removed by this new reversible air operated portable tool. It is available in a new series of 24 units in four basic speeds between 475 and 2,000 rpm. Each is available with a slip type or positive clutch and with a lever type or pistol type throttle. Weight of the tool assembly is 2 pounds.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

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If you write maker identify as IEN - 11610

lightweight fully insulated
**CADDY**
TYPE B *Electrode Holders*

Connected by the CADWELD PROCESS — the greatest advancement in arc welding in 20 years.

On Display
NATIONAL METAL SHOW
Oct. 19-23 Booth 1011

**CADDY ARC WELDING**
ACCESSORY DIVISION
ERICO PRODUCTS, Inc.
2070 E. 61st PLACE, CLEVELAND 3, OHIO

---

If you write maker identify as IEN - 11611

# KLIXON Thermo-Snap CONTROLS

Today . . . in practically every industry . . . Klixon Snap-Acting Thermo-Snap Controls are meeting the requirements for dependable, trouble-free performance in temperature control applications.

The reason for their wide acceptance is the actuating element . . . the scientifically calibrated Spencer thermostatic disc. This simple, foolproof element instantly snaps the circuit open with a quick break or snaps it closed to a solid make. It eliminates toggles, magnets and other complicated parts and is particularly suitable for use involving motion, altitude, shock and vibration . . . regardless of mounting position.

Klixon Thermo-Snap Controls, hermetically sealed and open types, are available in many types, shapes and sizes, in a wide variety of operating temperature ranges.

Write for complete information.

**SPENCER THERMOSTAT**
*Division of Metals & Controls Corporation*
210 FOREST ST., ATTLEBORO, MASS.

KLIXON

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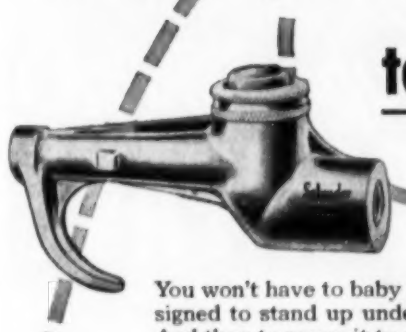
If you write maker identify as IEN - 11612

# At last! A blow gun that can take it!



You won't have to baby this gun. It was designed to stand up under hard steady use. And then to prove it to ourselves we tested it by dropping it 10 stories . . . it still worked perfectly. That's durability. Combine this with its handy hang up hook, countersunk nose, and shielded operating button and you have a blow gun that will give you years of satisfactory service.

Schrader catalog gives full information on this gun as well as on just about everything that has to do with the use of air around the shop. Send for this catalog today.

**A. SCHRADER'S SON**
*Division of Scovill Manufacturing Company, Incorporated*
458 Vanderbilt Ave., Dept. D-36, Brooklyn 38, N. Y.

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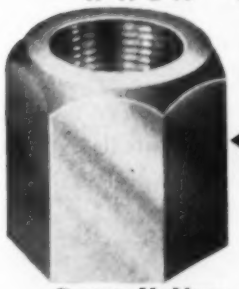
If you write maker identify as IEN - 11613

# Twice the Grip...

WHEN GRIP COUNTS



**BIDDLE HI-NUTS**

BIDDLE HI-NUTS are made for greater gripping power. Where vibration is high, where motion takes over, the additional gripping power of BIDDLE HI-NUTS takes control. Made from B 1113 steel, machined from the bar, BIDDLE HI-NUTS are threaded to SAE Specifications. Sizes from 1/2 inch to 1 1/4 inches, heights from 15/16th to 1 3/4 inches, with diameters across the flats from 3/4 to 1 3/4 inches. Put extra grip into the jobs where extra grip counts . . . with BIDDLE HI-NUTS.

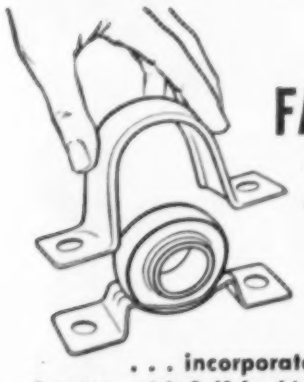
*Write today for more complete information and specifications.*

NATIONAL SCREW MACHINE PRODUCTS ASSOCIATION

**BIDDLE** SCREW PRODUCTS COMPANY
SHERIDAN, INDIANA

If you write maker identify as IEN - 11614

# NEW! LOW-COST PILLOW BLOCK



## FAFNIR Type PB

*"Economy Package"*

**. . . incorporates Fafnir Wide Inner Ring Bearing with Self-Locking Collar.**

The new Type PB Series Pillow Block is developed to fill a specific need for a high-quality, *precision* ball bearing unit *at lowest possible cost*. It is designed for *light duty* applications. Send for descriptive bulletin. The Fafnir Bearing Company, New Britain, Connecticut.

**OUTSTANDING FEATURES INCLUDE**

- Two-piece, separable pressed steel housing.
- Self-alignment at assembly
- Compact . . . lightweight
- Pre-lubricated bearing . . . Plya-Seal protected
- For shaft sizes up to and including 1¼".

**FAFNIR** BALL BEARINGS Most Complete Line in America

If you write maker identify as IEN - 11615

Thousands of tons don't make an ounce of difference to this FLOOR COVERING!

*Super-Tough*

PABCO MASTIPAVE

Pabco Mastipave withstands the grueling punishment of hand and lift truck traffic in industrial plants. Reduces maintenance costs, extends life of floor. Can be applied over wood and cement surfaces. Specified by cost-conscious industries again and again.

Super-Tough Mastipave can take the daily beating of heavy traffic. America's Number One Floor Covering—*super-tough, non-slip, resilient, low cost.* In rolls or tiles. Terra Cotta and Black.

*To find out how Pabco Mastipave can save you money in your plant...*

**FILL OUT THIS COUPON**

PABCO PRODUCTS INC.
New York 16 • Chicago 54 • San Francisco 19
(Mail to Dept. B nearest office)

GENTLEMEN: Without cost or obligation to me, please send your folder, "Every Building needs Pabco MASTIPAVE."

NAME _____

ADDRESS _____

CITY _____ STATE _____

## NEW LITERATURE—Continued

Identify as IEN - 0783

**MOTORS . .** Explosion-proof ac. types, ½ to 600 hp. in standard design for Class 1 Group D hazardous locations. Sectional drawing in 4-page Bulletin 160-A. Continental Electric Co., 323-27 Ferry St., Newark 5, N. J.

Identify as IEN - 0784

**PACKINGS . .** 112-page Catalog M-3105 on sheet packings, gaskets, rod and plunger, hydraulic packings, pump valves, O-rings, and engineering data such as conversion tables, chemical resistance, installation suggestions. United States Rubber Co., 1230 Sixth Ave., Dept. IEN, New York 20, N. Y.

Identify as IEN - 0785

**PLASTIC MATERIALS . .** Application ideas for Tenite thermoplastic based on its toughness, light weight, appearance, low heat conductivity, transparency, corrosion and weather resistance, in 16-page booklet, "Tenite". Eastman Chemical Products, 260 Madison, Dept. IEN, New York 16, N. Y.

Identify as IEN - 0786

**PLASTIC PRODUCTS . .** Injection molded parts from 2 to 48 oz. are designed and produced by the company's contract molding service. Picture details in 6-page file folder, "Facilities and Products". Bolta-Carpart, Inc., 209 W. Exchange St., Dept. IEN, Owosso, Mich.

Identify as IEN - 0787

**PLATING ANODES . .** Sizes, shapes and weights of copper, lead, zinc, tin, tin-lead, cadmium, cadmium oxide and brass plating anodes in 8-page revised Bulletin 141. Federated Metals Div., American Smelting & Refining Co., 120 Broadway, Dept. IEN, New York 5, N. Y.

Identify as IEN - 0788

**PRESSES . .** Modernize or convert your present single-crank power press, suggests 16-page Bulletin 45, which shows 42 assemblies for this purpose with "before-and-after" pictures and notes on advantages. E. W. Bliss Co., 1373-77 Raff Road S. W., Canton 10, Ohio

Identify as IEN - 0789

**PROTECTING . .** No carbon monoxide, fumes or odors from gasoline-powered equipment in your plant when it is equipped with the OCM Catalytic Exhaust, previously described IEN-11510-50. How it works is told in 4-page "Cleaner, Safer Air". Oxy-Catalyst Inc., Box 58, Wayne, Pa.

Identify as IEN - 0790

**PROTECTING . .** Electric controls for presses and other machines keep the operator's hands and arms away from the danger area. Selection chart in 12-page Catalog 59 tells how to select it. Micro Switch, Div. Minneapolis-Honeywell Regulator Co., 30 E. Spring St., Freeport, Ill.

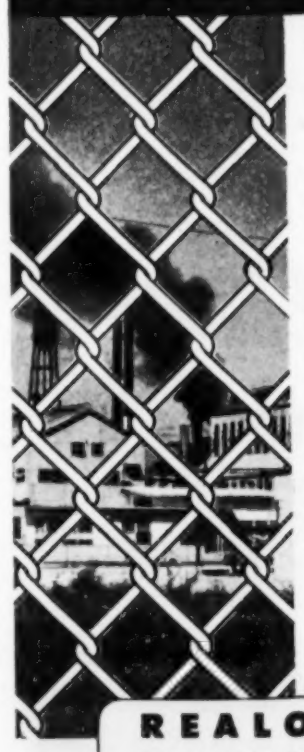
Identify as IEN - 0791

**ROTARY PUMPS . .** Gear-type units in 8 sizes, ½ to 200 gpm., for general-purpose service in handling non-corrosive liquids with lubricating qualities. Selection chart and detail specifications in 12-page Catalog 102. Tuthill Pump Co., 937-41 E. 95th St., Chicago 19, Ill.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11617

**REALOCK FENCE**



GIVES *Positive* PROTECTION

Positive protection for your grounds and property is assured with Realock Fence. In addition, all fittings, hinges and locking devices have bolts on the inside, secure from outside tampering.

Noted for its rugged construction and long-lasting weather resistance, Realock Fence can be depended upon for years of dependable, trouble-free service.

For additional information write our nearest sales office or consult your classified telephone directory.

THE COLORADO FUEL AND IRON CORPORATION
Denver, Colorado
PACIFIC COAST DIVISION
Oakland, California
WICKWIRE SPENCER STEEL DIVISION
Buffalo, New York

REALOCK FENCE
THE COLORADO FUEL & IRON CORPORATION
BRANCHES IN ALL KEY CITIES

If you write maker identify as IEN - 11618

**TO CLEAN YOUR DIE MOLDS..**

**Moisture, oil and foreign matter completely removed from air lines by patented one-piece separator and eliminator chamber.**

**Does not waste air by continuous venting. Positive, automatic, effective for paint sprays, sand blasting, etc.**

R & I E EQUIPMENT DIVISION
I-T-E CIRCUIT BREAKER CO.
GREENSBURG, PENNSYLVANIA

If you write maker identify as IEN - 11619

# Better FLOOR PROTECTION BEGINS WITH ALBION CASTERS!

Albion casters offer you greater floor protection, smoother handling over all types of floor surfaces, plus additional ease in transporting heavier loads with complete safety. A.I. casters pay-off in reduced maintenance. They're better-built . . . engineered for the job!

Available in a size, style, capacity and wheel type in both swivel and rigid models to meet every conceivable industrial application. It will pay you well to specify the best...specify Albion Industrial Casters.

*Write today for your free copy of the big new Albion Caster catalog.*

*Represented in Canada by: C. J. McDONALD, 365 Yonge St., Toronto*

**ALBION INDUSTRIES, Inc.**
ALBION, MICHIGAN

If you write maker identify as IEN - 11620

**MAINTENANCE COSTS TOO HIGH ON THESE ITEMS**

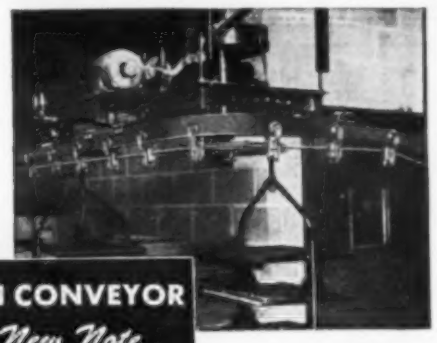
- PUMPS
- AIR TOOLS
- REDUCING VALVES
- STEAM TRAPS
- TEMPERATURE REGULATORS

**THEN USE ANDERSON Strainers**

• One way to save your plants hundreds of dollars and yourself a lot of headaches is to use low-cost Anderson Strainers ahead of pipeline equipment. Easily installed, they prevent maintenance and downtime by intercepting all dirt and solid particles. Long-lasting stainless steel mesh screen furnished as standard equipment. Mail coupon for folder and prices today.

**THE V. D. ANDERSON CO.** 1931 W. 96th St., Cleveland 2, Ohio

If you write maker identify as IEN - 11621



**BUSCHMAN CONVEYOR**
*Strikes New Note*
**IN PRODUCTION at NuTone, Inc.**

continuous handling of 50,000 parts daily!

This manufacturer's production suffered from aisles jammed with parts trucks, excessive manual handling, wasted space. A large inventory was required.

Now, Buschman "Universal" Overhead Trolley Cable Conveyor provides live storage space overhead, cuts parts handling to a minimum and significantly reduces inventory in process.

Using Buschman Cable Conveyor stock parts, you, like Nutone, can get a "custom installation" quickly and at low cost. Let Buschman suggest a time, money and space saving solution for your handling problem. Write today for details.

**THE E. W. BUSCHMAN CO.**
**4479 Clifton Ave. Cincinnati 32, Ohio**
Canadian Licensee:
James A. McKechnie, Ltd. Toronto 13, Canada

PRODUCE MORE FOR LESS with Buschman Conveyors

If you write maker identify as IEN - 11622

**Now *time* your jobs AUTOMATICALLY with CALCULAGRAPH!**

Photo courtesy of F. Jacobson & Son Albany, New York

**Prints date..**
**starting time..**
**finishing time..**
**— and total elapsed time!**

Save time and eliminate clerical errors with Calculagraph accurate-to-the-minute, printed job time records. Use these data cards for computing costs, estimating on reorders. One Calculagraph can record job time data for an entire shop or department.

***NEW!***
**AUTOMATIC DATER!**

Standard on all electric models. Automatically changes date — eliminates incorrect dating of records.

*ASK FOR COMPLETE INFORMATION, TODAY*

Illustrated literature and sample job cards will be sent promptly on request. Just call or write:

**CALCULAGRAPH COMPANY**
Sussex St., Harrison, New Jersey
STANDARD OF ACCURACY SINCE 1892

If you write maker identify as IEN - 11624

## TIMING . . Interval units accumulate equipment operating hours

**Source: ENGLER INSTRUMENT CO.**
**350 Culver Ave., Jersey City 5, N. J.**

**Read hours and tenths**

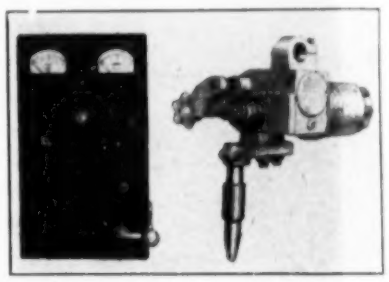
**Hour Log** designates two new instruments, one for dc. and the other for ac., to accumulate the hours that units of equipment are in actual operation. The dc. instrument is illustrated. It is intended for use primarily on mobile battery operated equipment where the battery supplies power, on regulated two min. intervals, to wind a spring driven clock movement. The clock continues in operation, as long as the equipment on which it is installed is operating, as a means to tell when normal maintenance attention is required.

**The ac. assembly** is enclosed in a rectangular rather than a circular housing and is driven by a synchronous motor for operation on 110-volt ac. at 25, 50 or 60 cycles, as specified. This instrument connects into the driving motor circuit to a machine or conveyor, or other unit of equipment in a plant, to accumulate the number of closed circuit hours as an indication of the time this equipment has been operated. Both instruments employ five-wheel counter assemblies to read to 9999.9 hours and then reset to zero.

If you write maker identify as IEN - 11625

## WELDING . . Automatic arc head, 1/8 to 1/4 in. electrodes, 2,000 amp.

**Source: MIR-O-COL ALLOY CO.**
**310-14 North Avenue 21, Los Angeles 31, Calif.**



**Stops if arc breaks**

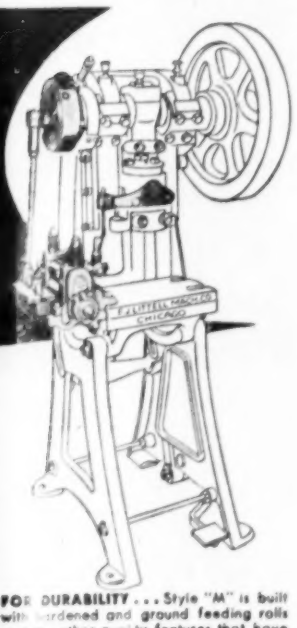
**The company** announces improved design of its Model 944 automatic welding head, previously described IEN-1194-52. The new head will feed both solid and tube type wire electrodes. It will take any size between 1/8 and 1/4 in. in outside diameter. The hold down roll is equipped with an integral tension arm so springs are not required. The feed nozzle is cast from the company's special alloy. The gear train and feed rolls are fitted with ball bearings.

**The control unit** is a new design that provides for inching and regulation of the rate of deposit, travel speed and welding current. Welding voltage and current can be read on meters on the control housing. The head assembly weighs 20 lb. and has a clamp opening to mount on a 1 1/4-in. support bar. Overall height is about 17 inches. Front to back is about 11 inches.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11626

FOR LOW COST AND BIG RESULTS
Feed Your Presses With
**LITTELL**
STYLE "M" AUTOMATIC
**ROLL FEED**



**FOR SPEED . . .** With Style "M" automatic feeding your press can easily produce 9,000 stampings an hour at 200 strokes per minute, or 4,600 stampings an hour at 100 strokes per minute.

**FOR VERSATILITY . . .** Style "M" feeds left to right, right to left and front to back. Feed direction can be reversed by simply reversing clutch. Feed lengths per stroke are 0 to 4 3/8" with standard gears and 0 to 8 1/2" with compound gears.

**FOR ADAPTABILITY . . .** Style "M" is adaptable to any standard punch press. It feeds coil stock up to 8" wide and up to .055" thick (17 gauge).

**FOR SAFETY . . .** Style "M" automatic feeding keeps hands and fingers away from danger, prevents costly accidents.

**FOR DURABILITY . . .** Style "M" is built with hardened and ground feeding rolls and the other quality features that have made Littell Roll Feeds accurate and durable since 1918.

**FOR ECONOMY . . .** Style "M" brings you a big saving in price. It gives your press the lowest insurance rate. It cuts your cost per stamping by multiplying press output.

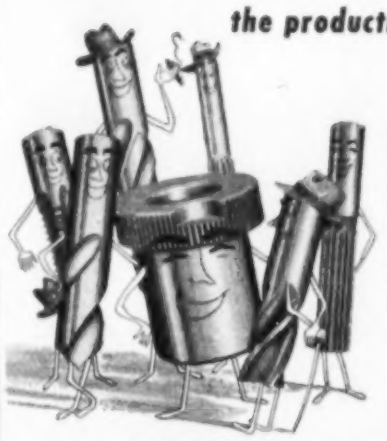
***WRITE FOR CATALOG***

F. J. LITTELL MACHINE CO.
Speed with Safety
ROLL FEEDS • DIAL FEEDS
STRAIGHTENING MACHINES
FEELS • AIR BLAST VALVES
District Offices: Detroit, Cleveland
4133 N. RAVENWOOD AVE., CHICAGO 13, ILL.

If you write maker identify as IEN - 11627

## UNIVERSAL DRILL BUSHINGS

*the production-tools' best friend*



reduce tool wear
help prevent tool breakage
prolong tool life

Universal Bushings help keep tool costs down for several reasons: their superfinish bore helps reduce tool wear • their blended radius helps prevent tool hang-up and breakage • their 100% concentricity and hardness tests insure accuracy and uniform high quality • their knurled heads provide quick, sure grip • available in a complete range of standard diameters and lengths • For complete information, write to the office nearest you — Universal Engineering Sales Co., 1060 Broad St., Newark 2, N. J.; 5035 Sixth Avenue, Kenosha, Wis. — or the home office.

**UNIVERSAL ENGINEERING COMPANY**
FRANKENMUTH 6, MICHIGAN
176-A

If you write maker identify as IEN - 11628

**THE *Right* KNIFE CLEARANCE FOR EVERY PLATE THICKNESS**

It is simple, fast and easy to adjust the knife clearance on a Steelweld Pivoted-Blade Shear to suit every plate thickness. Only turn a crank and watch a dial. That's all there is to it.

Because of this quick, easy adjustment, every cut made on Steelweld Shears is the best cut possible — straight, smooth, accurate. And of importance, KNIVES REMAIN SHARPER FOR LONGER PERIODS

Built for thicknesses to 1 1/4 in. and for lengths to 18 feet.

STEELWELD Pivoted-Blade SHEARS CATALOG No. 2011

Send for free Catalog No. 2011

THE CLEVELAND CRANE & ENGINEERING CO.
4216 East 282nd St., Wickliffe, O

**STEELWELD SHEARS**

If you write maker identify as IEN - 11629

## How YOU can tie better!

**U·S·S GERRARD ROUND STEEL STRAPPING** For palletizing, unitizing and carload reinforcement, on odd-shapes, and on cartons, crates and bundles of every size, U·S·S Gerrard Round Strapping is easiest to use because of its flexibility. It may be applied with both hand-operated and semi-automatic machines. And Gerrard Round Strapping costs about 40% less than any other metal reinforcement.

**U·S·S GERRARD FLAT STEEL STRAPPING** For certain palletizing, unitizing and carload reinforcement applications, some shippers prefer U·S·S Gerrard Flat Strapping. It is available in heavy duty sizes, and the Gerrard tools for stretching and sealing it are among the most modern and efficient now made.

A Gerrard engineer will gladly help you improve efficiency or lower cost of your tying operations, if such be possible. He can advise on the tying method that *best* fits your needs. Write for further information.

*A complete packaging service from carload to parcel post.*

**GERRARD STEEL STRAPPING DIVISION**
**UNITED STATES STEEL CORPORATION**
**4701 South Richmond St., Chicago 32, Ill.**

**U·S·S GERRARD**
*Round Steel* **STRAPPING** *Flat Steel*
**UNITED STATES STEEL**

If you write maker identify as IEN - 11630

4 WAY MIXING ACTION PRODUCES HOMOGENEOUS BLENDS... Reduces Mixing Costs —

with the
STURTEVANT BLENDER

Four separate mixing actions in the Sturtevant Blender assure complete blending of various materials regardless of weights, densities, finenesses, or other physical properties.

This mixing action provides a thoroughly blended product with no substances floating to remain unmixed.

Sturtevant Blenders are available in mixing capacities from 500 to 20,000 pounds. Write for information or engineering assistance.

STURTEVANT MILL COMPANY
113 CLAYTON STREET, BOSTON 22, MASSACHUSETTS
Designers and Manufacturers of
CRUSHERS • GRINDERS • SEPARATORS • CONVEYORS • MECHANICAL DENS and EXCAVATORS • ELEVATORS • MIXERS

If you write maker identify as IEN - 11631

HOW TO Squeeze the Most OUT OF EVERY MAN HOUR!

Only Vise-Grip is *designed* to handle jobs no other tool can touch! Gets 'em done jiffy-quick the way it *locks* onto work with *Ton-Grip*. Won't slip. Turns, bends, twists, pulls, ratchets, cuts, HOLDS! It gets in closer quarters, locks on tighter, or adjusts to give the strongest plier grip you've ever seen! Save man hours! Order 7" or 10", with or without cutter. Only $1.85 to $2.60 at your supplier.

ALSO
VISE-GRIP C-Clamp ..... $2.95
VISE-GRIP Sheet Metal Tool .. 2.95
VISE-GRIP Welding Clamp ... 2.95

MANUFACTURED ONLY BY
PETERSEN MFG. CO., DEPT. IEN-10, DE WITT, NEBR.

If you write maker identify as IEN - 11632

Actually a handy, 48-page manual for your desk or file. Describes and diagrams Titeflex® Seamed and Uniflex Seamless Metal Hose, standard and special fittings, couplings, typical assemblies—with tabulated specifications for easy ordering. Engineering data include working pressures, flow rates, frictional losses, how to install and care for flexible metal hose. Send coupon for your copy. No obligation.

Titeflex

TITEFLEX, INC.
506 Frelinghuysen Avenue, Newark 5, N.J.
Please send me your new Titeflex Flexible Metal Hose Catalog No. 200.
Name
Title
Company
Address
City Zone State

## NEW LITERATURE—Continued

Identify as IEN - 0792

**PYROMETER SUPPLIES . .** Thermocouple theory and practice, selection and installation suggestions, standard assemblies and list prices, insulators, tubes, wells. Buyers' Guide 100-5, 52 pages. Minneapolis-Honeywell Regulator Co., 4456 Wayne Ave., Dept. IEN, Philadelphia 44, Pa.

Identify as IEN - 0793

**STOCK RACKS . .** Open-side multiple-arm racks to store bar stock, pipe, metal shapes accessibly. One and two-sided models are summarized in 4-page Bulletin 26-R. Brown Engineering Co., 130 N. 3rd St., Dept. IEN, Reading 2, Pa.

Identify as IEN - 0794

**RECTIFIERS . .** Selenium units with low reverse leakage current, originally developed for Magamp magnetic amplifier service, now are offered for other uses. Application and performance data in 8-page Bulletin 52-650. Westinghouse Electric Corp., 511 Wood St., Dept. IEN, Pittsburgh 30, Pa.

Identify as IEN - 0795

**BLIND RIVET . .** One man installs the Cherry rivet from one side of the work, using hand or power tools. He can place either self-plugging or pull-through rivet designs. Application ideas in 12-page Catalog TL-76. Townsend Co., 49 Industrial St., Dept. 116, New Brighton, Pa.

Identify as IEN - 0796

**RUBBER PARTS . .** Feet for angle iron, vacuum cups, floor mats are some of the thousands of items in 158-page Catalog 52, copyright 1953. It covers bumpers, bushings, gaskets, grommets, extruded and molded rubber products. Atlantic India Rubber Works, 573 W. Polk St., Chicago 7, Ill.

Identify as IEN - 0797

**SILICONE RUBBER . .** Diaphragms, gasketing, sheet packing, oil seals, rings, insulating tape, rod packing are products in 8-page Bulletin AD-147 on silicone rubber. Garlock Packing Co., 248-52 Main St., Dept. 34, Palmyra, N. Y.

Identify as IEN - 0798

**SAW BLADES . .** Hand and power hacksaw blades and bandsaw blades are listed in 8-page Catalog 700 with suggestions on selection and use, notes on their manufacture. G. W. Griffin Co., 653 Griffin Ave., Franklin, N. H.

Identify as IEN - 0799

**O-RING SEALS . .** Recommended uses for O-rings in moving and non-moving applications, clearance dimensions, standard dimensions for commercial and other types, service performance chart. Catalog, 24 pages. Stillman Rubber Co., 5811 Marilyn Ave., Dept. IEN, Culver City, Calif.

Identify as IEN - 0800

**STEEL . .** Jalten is new name for low-alloy high-strength steel formerly known as Otiscoloy. Applications based on strength, abrasion resistance, corrosion resistance strength-weight ratio, resistance to abrasion and corrosion, are illustrated in 28-page "Jalten Booklet". Jones & Laughlin Steel Corp., 455 Gateway Center, Pittsburgh 30, Pa.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11633

BLUE RIBBON RESISTORS

Our Blue Ribbon Resistor—designed in 1939—was the *first* flat or strip resistor in the field. And now, though there are others of similar type, our Blue Ribbon still holds first place—and *is still winning "blue ribbons,"* and such comments as quoted above.

Our crazeless gray enamel eliminates the disastrous crazing which results in failure of the resistive element.

The aluminum thru-bar distributes the heat more uniformly along its entire length—than conventional tubular resistors.

The studs are peened to serve as mounting supports and also to permit the stacking of units to save space.

As compared to the conventional tubular resistor Blue Ribbons give you:

**1. Higher wattage rating per unit space requirement. 2. Reduction in space behind the panel or mounting surface. 3. Sturdy but simple mounting, either single or stacked. 4. Lighter weight. 5. Lower induction.**

Our Blue Ribbons are designed for and manufactured in accordance with JAN-R-26A specifications.

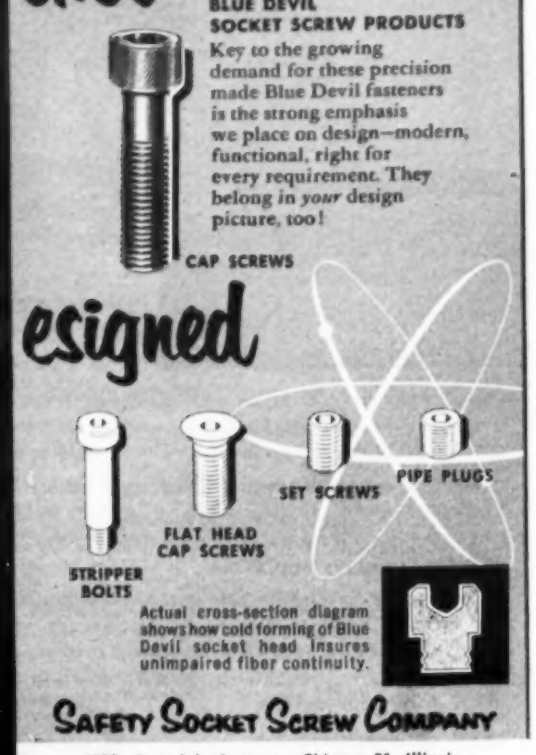
HARDWICK, HINDLE, INC.
Rheostats and Resistors
Subsidiary of
THE NATIONAL LOCK WASHER COMPANY
Established 1886 NEWARK 5, N. J., U.S.A.
the mark of quality
for more than half a century

If you write maker identify as IEN - 11634

BLUE DEVIL

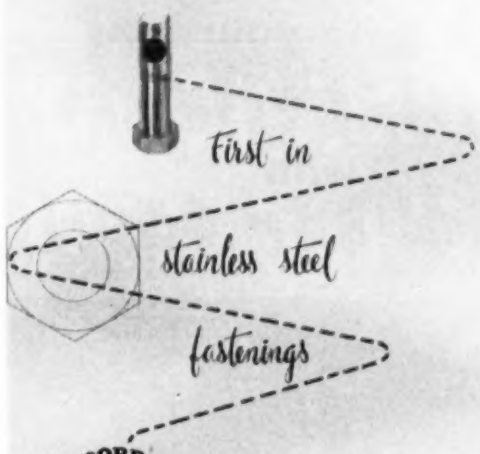
Better Designed

BLUE DEVIL SOCKET SCREW PRODUCTS
Key to the growing demand for these precision made Blue Devil fasteners is the strong emphasis we place on design—modern, functional, right for every requirement. They belong in *your* design picture, too!




SAFETY SOCKET SCREW COMPANY
6508 Avondale Avenue • Chicago 31, Illinois
SOCKET SCREWS EXCLUSIVELY!
SOLD ONLY THROUGH AUTHORIZED INDUSTRIAL DISTRIBUTORS

If you write maker identify as IEN - 11635



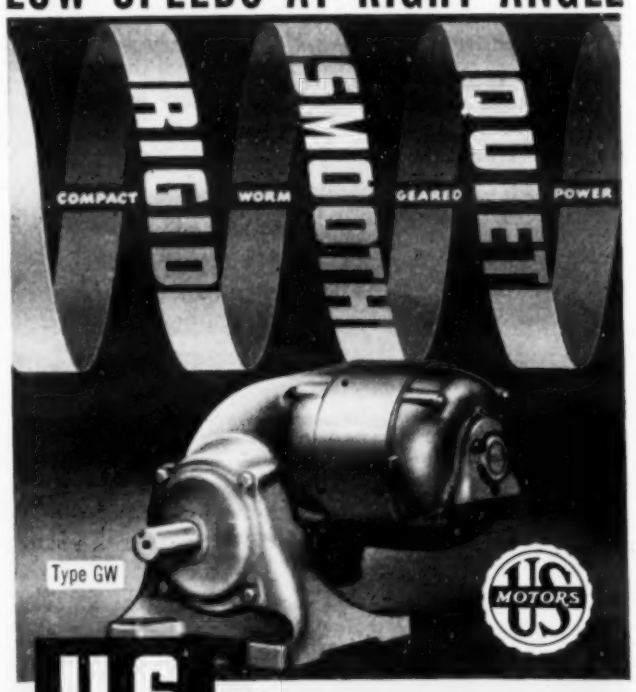

ANTI-CORROSIVE METAL PRODUCTS

behind this symbol is an on-hand inventory of *more than 9,000 items and sizes* of stainless steel fastenings. Ready for immediate shipment, this stock is the largest and most complete in the industry. In addition, a production capacity for large or small quantities of special orders is at your service! A good reason—when you think of stainless steel fastenings—to think FIRST of Anti-Corrosive! *Send for Catalog 53V today!*

ANTI-CORROSIVE METAL PRODUCTS CO., INC.
Castleton-on-Hudson, New York

If you write maker identify as IEN - 11636

LOW SPEEDS AT RIGHT ANGLE




U.S. SYNCROGEAR MOTOR
20 to 155 RPM—¼ to 3 HP
*Request Bulletin*
U.S. ELECTRICAL MOTORS Inc.
BOX 2058, LOS ANGELES 54, CALIFORNIA MILFORD, CONN.

If you write maker identify as IEN - 11637

# HOW INDUSTRY IS SAVING MONEY

**A PROBLEM**—Perhaps it's a bottleneck on the assembly line, broken shipments at the delivery point, stock confusion in the supply department, or any one of a number of problems which can be solved by a dependable industrial tape.

**SOLUTION, PART I**

An F. O. S. Industrial Tape Analyst who can investigate a problem and suggest a solution. F.O.S. Analysts are trained technical salesmen. They know tapes and the applications which every day are doing new jobs quicker, old jobs better.

**SOLUTION, PART II**

F.O.S. laboratory experts who know industry's problems and have had practical experience in solving them. That's industry's assurance that if there is a better way with industrial tape, there will be an F.O.S. Tape for the job.

**You Too Can Benefit**—Ask to have an F.O.S. Tape Analyst call on you. He'll show you how to save time and money with F.O.S. Industrial Tape. Prices, catalogues, samples, also on request. Call on "the originators of pressure-sensitive industrial tape" . . . Write factory (below), today.

F.O.S. INDUSTRIAL TAPE DIVISION
**THE SEAMLESS RUBBER COMPANY**
NEW HAVEN 3, CONN., U. S. A.

If you write maker identify as IEN - 11638

# Paltier
"TIERS OF RACKS"
# PYRAMID RACKS
PATENTED

## SAVE SPACE . . . and YOU SAVE DOLLARS!

PALTIER PYRAMID RACKS are storing as much as 75% and more crushable, bulky and irregular shaped items in the same storage area — in industry after industry. They save their cost in no time at all.

**A Paltier User Says:**

*"We are now able, in one operation, to load and unload various colors or styles of asphalt or asbestos shingles while under previous systems it sometimes required movement of five to eight stacks of material to obtain the pallet where the correct item was stacked"*
*—a real time saver!*

*Ask Us!*

A Paltier storage engineer will be glad to show you how you can save storage space, too, with the Flexible Paltier System. Ask us, without obligation.

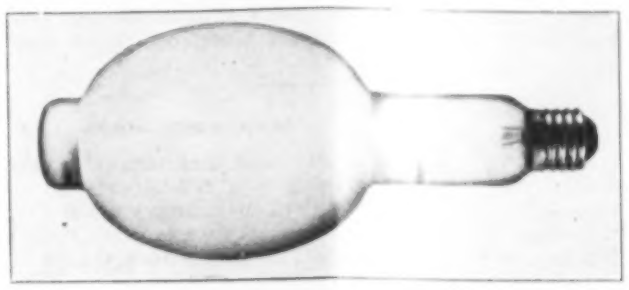
***Write for 16-page Catalog***

THE PALTIER CORPORATION
1711 KENTUCKY ST.
MICHIGAN CITY, IND.

If you write maker identify as IEN - 11640

## LIGHTING . . Fluorescent lamp encloses mercury arc lamp as a unit

Source: WESTINGHOUSE ELECTRIC CORP.
2-4 MacArthur Ave., Bloomfield, N. J.



**Technical data** on request

**New size**, rating 700 watts, has been added to the company's previously developed 400 and 1,000 watt fluorescent mercury lamps. The construction includes an inner mercury arc lamp in a quartz tube and an outer glass envelope with phosphor coating on its inner surface. The mercury lamp emits a brilliant blue-green light and also invisible ultraviolet rays. These latter rays excite the phosphor causing it to fluoresce red. The combination of red and blue-green produces a white light of high intensity.

**The lamps** produce about 50 lumens per watt as compared with 22 lumens per watt for an incandescent lamp. Life expectancy is 5,000 to 6,000 hours. This compares with 750 to 1,000 hr. for an incandescent lamp. A mogul screw base is standard construction. Principal applications are in street, flood and general lighting. Length is about 12 to 15 inches.

If you write maker identify as IEN - 11641

## PUNCHING . . Motor driven machine, also to notch, nibble steel to 1/4 inch

Source: WALES-STRIPPIT CORPORATION
361 Payne Ave., North Tonawanda, N. Y.

**Quick tool change**

**Model 10-AA** is improved design of the company's Fabricator machine, previously described IEN-4232-50. The new assembly employs a Hydra-New-Matic head for operation with a minimum of vibration or noise at 165 strokes per min. in single hole punching and for nibbling. The machine features quick interchange for punching, notching and nibbling and for change of various sizes and shapes of punches and dies in either a 1¼-in. or a 3½-in. punch holder.

**The notching unit** is positioned on the machine bed and notching operations can be performed without ram adjustment. It is equipped with built-in scales and gages adjustable to 5 in. for corner notches. A nibble control lever takes the non-repeat device out of action for uninterrupted operation.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11642

NOELTING
# Faultless ENGINEERED TRUCK CASTERS
CUT HANDLING COSTS

## NEW!
**MEDIUM DUTY INDUSTRIAL CASTER**
*Cuts Handling Time —Saves Man-Hours*

900 Series Double Ball Bearing Swivel Plate Caster with Vulcanized Rubber Tread Wheel

The 900 Series, all purpose, Truck Caster has heavy pressed steel horn and top plate, corrugated for extra strength. Swivels easily on *two* full rows of hardened balls rolling around *two* separate raceways. Choice of six kinds or wheels to suit load (*175 lb. to 550 lb.*) and floor surface conditions.

All the engineering "know-how" from *over half a century of specialized experience* is yours in Faultless Industrial Casters—to speed production lines, trucks, portable equipment . . . with *less time, noise, effort.* Ask for Cat. 157, no obligation.

**FAULTLESS CASTER CORPORATION**
Dept. IE-11, Evansville, Indiana
*Branches in Principal Cities—Canadian Factory: Stratford, Ont.*

If you write maker identify as IEN - 11643

# NYLINED* BEARINGS

*... with Smooth, Tough, Du Pont* NYLON

*Solve Many Bearing Problems*

- Resiliency resists poundout
- Permit dry operation
- Minimize abrasion failures
- Silent operation
- Lower friction
- Superior corrosion resistance
- Damp mechanical vibration
- Eliminate friction oxidation
- Operate in liquids
- Close fits
- Non-contaminating
- Extremely compact
- Light weight
- Low cost
- Longer life
- Less maintenance
- Bearing surface instantly replaceable

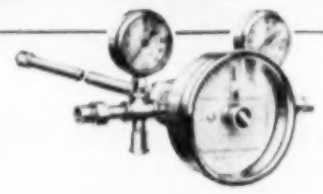
* For further information and the name of your local representative, write

**THOMSON INDUSTRIES, Inc.**
*Dept. 8*
*Manhasset, New York*

Also Manufacturers of BALL BUSHINGS . . . the Ball Bearing for Linear Motions

If you write maker identify as IEN - 11644

# Best way to turn a valve ON AND OFF!



**The Taylor Expansion Stem Temperature Controller** (Type P) is an inexpensive, air-operated, non-indicating controller. It is ideal for those applications where "on-off" controller action is acceptable, and where there is sufficient space for installing the 12" or 15" rigid expansion stem. Typical applications: Hot Water Storage Tanks, Sausage Room Coolers, Can Cooling Canals, Fat Chilling Vats, Lard Chilling Rolls, Can Exhausters, Food Cookers, Generator Air-Coolers, Feed Water Heaters, Waxing Machines, Beer Pasteurizers, Bottle Washers, Air Ducts.

**Temperature Control Point** is easily changed by means of a key-type wrench. Ranges from 32 to 250°F. Direct or reverse acting. Operates on an air pressure of 20 psi.

**Ask your** Taylor Field Engineer or write for **Catalog 7R.** Taylor Instrument Companies, Rochester 1, N. Y., and Toronto, Canada.

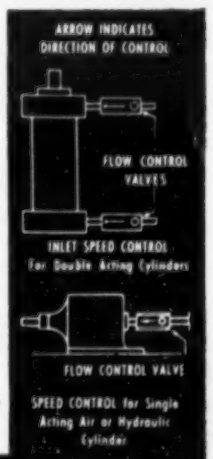
***TAYLOR INSTRUMENTS MEAN ACCURACY FIRST***

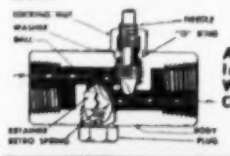
If you write maker identify as IEN - 11645

# Get Easier, More Accurate Cylinder Speed Control

with ***Pneu-Trol*** VALVES IN AIR OR HYDRAULIC USE

**Pneu-Trol Valves combine in a short, compact body, a tapered fine thread needle for extremely accurate air or oil flow control and a floating retro ball check, which permits full flow in the opposite direction. Improved "O" Gland structure seals and locks the fine needle setting when speed adjustments are made. Retro ball floats in most sensitive position to seat, requiring only a slight differential pressure to fully open or close it. Pneu-Trol Flow Valves are available in 5 female pipe sizes — ⅛" to ¾". Valve bodies are made from brass, aluminum, steel or stainless steel.**



**Attractive Prices — Immediate Delivery Write for Illustrated Circular and Price List.**

**Pneu-Trol Devices, Inc.**
1438 N. Keating Ave., Chicago 51, Ill.

If you write maker identify as IEN - 11646

ILLINOIS GLOVES...

JOB-ENGINEERED to the 'Nth degree!

Precision-engineered for your job, tested in laboratories, proved on production lines! That's Illinois.. the glove with built-in safety, longer life, better fit!

RECONDITIONING WORK GLOVES saves money! Illinois gloves are made strong, take reconditioning in stride, come out better than new! Write for information!

ILLINOIS GLOVE CO.
Sales Office: 1401 Fairfax Trafficway Bldg. D, Kansas City, Kansas

Send for catalog! If you can't find the all-leather glove you need in Illinois' complete line, write... we'll develop specials for you!

ILLINOIS GLOVE CO. CHAMPAIGN, PANA, EFFINGHAM

If you write maker identify as IEN - 11647

Stop HACKSAWING by Hand!

use

HAND-I-HACK* portable power hack saw

Cuts at any angle up to 45°.

Cuts 3" square steel bar.

HAND-I-HACK eliminates the sweat and unproductive cost of manual hacksawing. Rugged—light in weight—Hand-I-Hack can be carried anywhere in the shop to cut bar stock, angle iron, flexible metal tubing, thin-wall tubing—even 4" I-beams.

Attached to the work, it saws in any position: horizontal, vertical, angular, *upside down*. One-quarter HP motor plugs into wall socket. Motors available for all standard circuits.

Cuts are accurate—saves stock. First cost is low—operating and upkeep cost negligible. Another saving: uses low-cost high speed *hand blades*.

● *Write for catalog and name of dealer.*

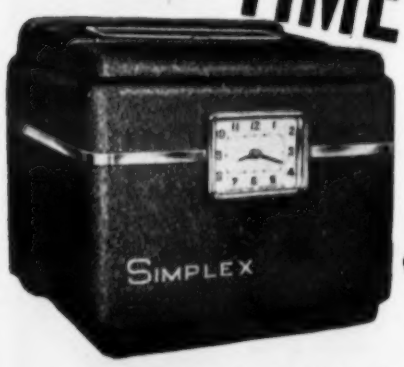
*T.M. Reg. U.S. Pat. Off.

Lipe-ROLLWAY CORPORATION
Manufacturers of Automotive Clutches and Machine Tools
812 Emerson Ave., Syracuse 1, N. Y.

If you write maker identify as IEN - 11648

Enjoy THE ADVANTAGES OF HAVING TIME RECORDED

ACCURATELY
AUTOMATICALLY
EFFICIENTLY




THE NEW Simplex TIME RECORDER

This new Simplex Time Recorder figures payrolls easier, 50% faster—cuts payroll costs in half.

Vertical or horizontal print . . . Two color registration . . . Trigger-touch print . . . Direct subtraction . . . One-minute positioning . . . Attractive, indestructible case.

SIMPLEX TIME RECORDER CO., Gardner, Mass., Dept. I-10
Please give us more information on:
☐ Cost Recorder ☐ Time Cards ☐ Electric Time Stamp
☐ Watchman's Clock ☐ Time Card Files ☐ Time Card Racks
Firm.....
Name.....
Street & No.....
City..... State.....

## NEW LITERATURE—Continued

Identify as IEN - 0801

**STORING . .** Automobile parking in cities is the subject of 12-page bulletin in technical article form, published by a firm of consulting elevator engineers. Title is "Vertical Parking Garages". Charles W. Lerch & Associates, 1172-A Board of Trade Bldg., Chicago 4, Ill.

Identify as IEN - 0802

**MACHINE TABLES . .** For jobs that require circular spacing and angular positioning to a few seconds of arc, 12-page Bulletin 558-1 offers 10 to 50-in. rotary tables along with application pictures on how others use them. Pratt & Whitney, 49 Charter Oak Blvd., West Hartford 1, Conn.

Identify as IEN - 0803

**TACHOMETERS . .** Resonant reeds vibrate to indicate speed of rotating equipment from portable grinders to large turbines. This operating principle is described in 16-page pocket Bulletin 31-P8 on the Frahm hand tachometer. James G. Biddle Co., 1314-18 Arch St., Philadelphia 7, Pa.

Identify as IEN - 0804

**TEST RADIOISOTOPES . .** Twenty-five Carbon-14 materials in safe micro-curie amounts require no AEC authorization. Suggestions on their use as laboratory reagents for analysis and tracer purposes are in 11-sheet Bulletin FS-231. Fisher Scientific Co., 719 Forbes St., Pittsburgh 19, Pa.

Identify as IEN - 0805

**PIPE THREADING . .** Hand tools to thread and cut pipe to 4 in., power units to use with them, also machines to thread pipe and bolts to 2 in., in 8-page Condensed Catalog with list prices individually and in sets. Beaver Pipe Tools Inc., 324 Dana St. N. E., Warren, Ohio

Identify as IEN - 0806

**TIMING . .** Lever-operated switch provides time delay by restricting air flow through an adjustable orifice in a sealed chamber. Delay interval is .1 sec to 10 or more minutes. Contact data in 4-page "Agaswitch" bulletin. Elastic Stop Nut Corp., 1022 Newark Ave., Elizabeth, N. J.

Identify as IEN - 0807

**TRAILERS . .** Industrial-type platform, hopper, bar-stock and other trailers in 12-page Catalog TC-53 include one design that will not tip when turning. Thomas Truck & Caster Co., Dept. 85, Mississippi River, Keokuk, Iowa

Identify as IEN - 0808

**TRANSFORMERS . .** Contract service will design and manufacture transformers and coils to specification, with short runs a specialty. Scope, facilities and background in 4-page bulletin. Transvision Inc., Transformer & Coil Mfg. Div., 389 North Ave., New Rochelle, N. Y.

Identify as IEN - 0809

**TRANSFORMERS . .** New line of dry-type units come in ratings from 3 to 100 kva. single-phase ac. at 600 volts and under. They are lighter and more compact than previous designs. "Dry Type Transformers", 4 pages. Wagner Electric Corp., 6414 Plymouth Ave., St. Louis 14, Mo.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

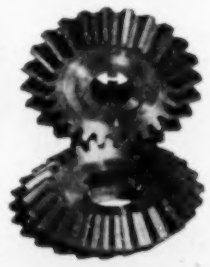
If you write maker identify as IEN - 11649

D.O.James Established 1888

GEARS For INDUSTRY

SINCE 1888 . . . We have been making many types and sizes of gears for industry. Vast plant facilities of the most modern gear cutting equipment assure capable handling of your *production* or *special* gear requirements.

**HELICAL and BEVEL GEARS**—From 1" to 60" in diameter and from 24 DP to 1½ DP.
**SPUR GEARS**—Size range from ¾" to 150" in diameter. 32 DP to ¾ DP.
**HERRINGBONE GEARS**—Made from 1" to 60" in diameter and from 10 DP to 1½ DP.
**SPIRAL BEVEL GEARS**—Made from 1" to 30" in diam. and 24 DP to 1½ DP.
**WORM GEARS**—Made from 1" to 100" in diam. and from 24 DP to 1 DP.



YOUR GEAR INQUIRIES WILL RECEIVE IMMEDIATE ATTENTION
D.O.JAMES GEAR MANUFACTURING COMPANY
1140 W. MONROE ST. • CHICAGO 7, ILL.

If you write maker identify as IEN - 11650

SHELDON CHICAGO U.S.A.

OFTEN PAYS OUT ON THE FIRST JOB...
*and gives additional years of "cost free" service.*

In the past, lathes were generally bought as large and as heavy as possible to insure accuracy and sufficient power. Now, with accurate, low-cost Sheldon Precision lathes, it is more profitable to buy these faster, cost-cutting lathes for the specific job at hand just as you would buy jigs and fixtures.

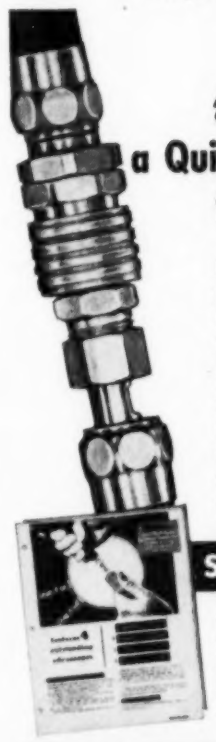
In savings of tooling costs, operator cost, power cost, and plant loading, as well as extra profits from more pieces per hour, Sheldon lathes often pay back their cost on a single run.

Sheldon lathes will work to the closest tolerances—have "Zero Precision" Taper Roller Bearings. They can take a healthy cut when operating at high speed direct drive—have double V-belts to the spindle. They will swing 10", 11" or 13" and have a 1⅝" hole through the spindle—have sufficient capacity for the great bulk of lathe work. Sheldon lathes have created a new factor for figuring machinery costs. They are tools you should know about.

Write for Catalog

SHELDON MACHINE CO., INC.
4208 N. Knox Ave. Chicago 41, Illinois

If you write maker identify as IEN - 11651



At last...
a Quick-Detachable Connection that isn't a bottleneck!

**Binks new Q-D Connection for spray guns and other air-operated equipment slashes pressure drop to only 5%!**

The improvement it offers is quickly seen from laboratory tests of *other* standard connectors whose pressure drops ranged from 21⅓ to 57⅓%! Besides low-pressure drop, Binks new Q-D Connection offers 4 other major improvements. Send for details, today!

Send for Bulletin Q-D

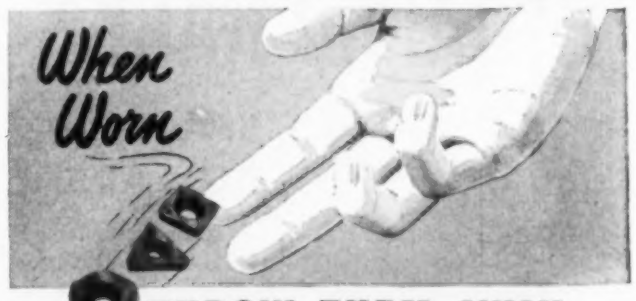
Tells how Binks Q-D Connection speeds work, cuts fatigue, ends danger of thread damage. Prices included. No obligation. Write: Binks Manufacturing Co., 3120-34 W. Carroll Ave., Chicago 12, Ill.

Binks EVERYTHING FOR SPRAY PAINTING

GUNS • SPRAY BOOTHS • MATERIAL TANKS • EXTRACTORS & ACCESSORIES

REPRESENTATIVES IN PRINCIPAL U. S. & CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY

If you write maker identify as IEN - 11652




THROW THEM AWAY ... and Save Money

Regrinding of carbide tools—even the best—consumes time and money. It can be a major item in over-all tooling costs. But—there's a way to eliminate this expense entirely on many jobs. Here's how.

The "Kendex" tool needs no regrinding! It has an indexable insert that can be discarded when all its multiple cutting edges become dull.

By the time replacement is required (at slight cost compared to that of regrinds), the insert has already paid for itself by increased productivity, and to discard it is economical practice.

Kendex tools are available in three styles—with round, square, or triangular inserts—as illustrated, and in a range of shank sizes—½" to 1" square.

Perhaps you have jobs on which standard Kendex tools will be suitable—or you may be able to use the standard inserts in conjunction with present tooling. If you desire, one of our Tool Engineers will be glad to assist in working out suitable applications of the "Kendex"* principle to your specific machining problems. Kennametal Inc., Latrobe, Pa.

*KENDEX

KENNAMETAL
CEMENTED CARBIDE TOOLING THAT INCREASES PRODUCTIVITY

If you write maker identify as IEN - 11653

# New...Spring Makers and Spring Users alike have a Uniform Method for Testing Springs!

THE TORRINGTON SPRING TESTER

**Uses:** for accurate inspection, in-use testing, designing springs for specific uses, and as a basis for statistical quality control.

**Simple:** can be used at operating levels by relatively inexperienced personnel. Portable!

**Accurate:** 2 models—the 3 pound model measures loads to the nearest 1/100 ounce, and the 16 pound model to the nearest 1/5 ounce; lengths and deflections to 1/1000 inch.

**Fast:** requires minimum time to adjust for accurate readings, or to reset for other springs.

**Practical:** measures under conditions approximating actual use, through interchangeable fittings.

**High sensitivity:** over a wide range, on both tension and compression types of springs.

*For complete information please write:*

The TORRINGTON MANUFACTURING COMPANY TORRINGTON, CONNECTICUT

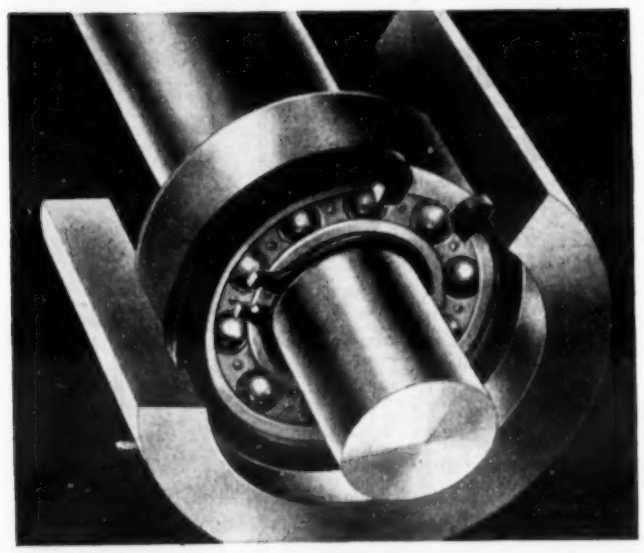
WORLD'S LARGEST BUILDERS OF SPRINGMAKING MACHINERY

If you write maker identify as IEN - 11654

# Save Time

# Save Materials

# Save Money!



Examine the designs of all your products and machines. No doubt you can use retaining rings on axles and in housings – not **only to save assembly time, but to save weight, parts and space.**

The use of these inexpensive yet efficient artificial shoulders is already widespread, and is increasing daily.

There are literally thousands of places in which redesigning for retaining rings can increase your profits and improve your products – uses ranging from heavy duty engines and drill presses to toys, gadgets and small parts of innumerable articles.

It's wasteful to cut down shafts to make shoulders. Redesign to groove smaller shafts and housings and use these high grade steel rings.

Let our engineers consult with you. Send for folders.

Don't pass up this opportunity to increase profits.

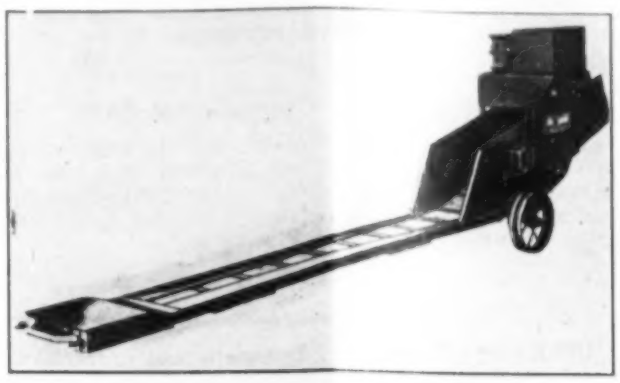
**THE NATIONAL LOCK WASHER CO.**

NEWARK 5, NEW JERSEY • MILWAUKEE 2, WISCONSIN

If you write maker identify as IEN - 11656

## CONVEYING . . Portable belt unit for car unloading mounts 18 in. belt

**Source:** LAKE SHORE ENGINEERING CO.
853 Lake Shore Drive, Iron Mountain, Mich.



**Recommended to feed a second conveyor**

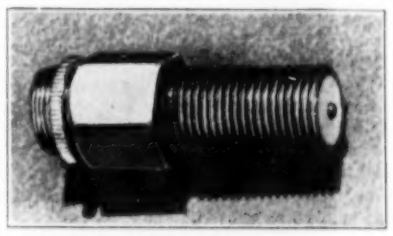
**Model 5200-B** designates a new motor or engine driven portable belt conveyor in a construction that permits thrusting the unit beneath a hopper car to rest on a railroad track or to ride in a small trench beneath the track. Drive is by a 3-hp. motor or an 8-hp. air cooled gasoline engine equipped with a battery and electric starter. The belt is 4-ply 28 oz. duck measuring 18 in. in width.

**The conveyor frame** is slider bed design in bolted and welded construction. Throat sides are equipped with wear bars to prevent material from wearing the belt sides. A hydraulic jack provides for 12-in. vertical adjustment. Operation is at 93 fpm. to provide a rating of 106 ton of coal per hr. or 158 cu. yd. of aggregate material.

If you write maker identify as IEN - 11657

## COUNTING . . Impulse generator actuated by passage of magnetic body

**Source:** ELECTRO PRODUCTS LABORATORIES INC.
4504-B N. Ravenswood Ave., Chicago 40, Ill.



**Teflon insulated**

**Model 3010-HT** is new design of the impulse generator, previously described IEN-6430-52. It is intended for operation at temperatures to 500 deg. F. It generates usable output voltage ranging from 0 to 28 volts at frequencies to 75,000 cycles per second. This compares with the maximum rating of 20,000 cps. for the previous Model 3010.

**An electric impulse** that can be amplified and employed to count revolutions, recurring operations, sequence, cycles or motions is generated in a proportional output voltage to the rate of motion or speed of the magnetic body employed as the actuating element. This can be the keyway in a shaft, the teeth in a gear, the spokes in a wheel, a slot in the rim of a wheel or shaft, a screwhead or pin in a moving part. The action does not require physical contact.

**The unit** is self-energized by a built-in permanent Alnico magnet. Assembly is in a stainless steel threaded body. Dimensions are 2 by ¾ inch. The mounting thread is ⅝ inch. The threaded portion is a little under 1 in. in length.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11658

# DIFFERENTIAL PRESSURE CONTROLS FOR LOW PRESSURES

MERCURY SWITCH EQUIPPED

FOR AIR OR GAS (INCHES OR FRACTION OF INCHES OF WATER)

TO OPEN OR CLOSE AN ELECTRICAL CIRCUIT ACCORDING TO A MINUTE CHANGE IN THE DIFFERENCE BETWEEN TWO PRESSURES OR VACUUMS

Mercoid Type PPQ Diaphragm Differential Pressure Controls operate from minute changes (.03" water) in the difference between two pressures.

Ranges to cover most applications (inches of water) 6" vacuum to 6" pressure, and 30" vacuum to 30" pressure. Available for various circuit arrangements.

Electrical Capacity—0.3Amp. at 115V., A.C. or 0.15 Amp., at 230V., D.C. Can be furnished in explosion-proof or weather-proof cases.

WRITE FOR BULLETIN CA-3P

THE MERCOID CORPORATION
4201 BELMONT AVE., CHICAGO 41, ILLINOIS, U.S.A.

If you write maker identify as IEN - 11659

SAFE HERMAN NELSON
PORTABLE AIR HEATERS

Here's safe temporary heat you can always trust! Herman Nelson Portable Air Heaters operate on the "sealed flame" principle. They are vented. They have automatic safety controls. There's no danger of fire, carbon monoxide, smoke or soot. Clean heated air *only* is directed to any spot you select—through flexible canvas ducts. Herman Nelson has the only complete line of completely safe Portable Air Heaters . . . oil or gasoline fired; electric or gasoline powered. Capacities from 125,000 to 450,000 BTU.

Get all the FACTS about ALL Portable Heaters. Write American Air Filter Company, Inc., Dept. 103, Moline, Illinois.

If you write maker identify as IEN - 11660

## J-M BLAZECRETE speeds refractory repairs...

**That's why it pays you to use this hydraulic-setting refractory for temperatures to 3000F**

REPAIR old refractory linings—or build new ones—quickly and economically with Blazecrete*. For troweling, just mix Blazecrete with water as you'd mix ordinary concrete . . . then slap-trowel it in place. When gunned, Blazecrete adheres readily with a minimum of rebound loss. Either way, Blazecrete goes on fast . . . without ramming or tamping.

Three types of hydraulic-setting Blazecrete are available.

**3X BLAZECRETE**—For temperatures through 3000F. Excellent for forge furnace linings, lime kilns, burner blocks, soaking pits, and industrial boilers.

**STANDARD BLAZECRETE**—For temperatures through 2400F. Can be used by boiler manufacturers to replace fire clay tile in wall construction.

**L. W. BLAZECRETE**—For temperatures through 2000F. An insulating refractory . . . light in weight, low in thermal conductivity.

For full details, send for Brochure RC-28A. Write Johns-Manville, Box 60, New York 16, N.Y. In Canada, 199 Bay St., Toronto 1, Ontario.

*Reg. U. S. Pat. Off.

Johns-Manville BLAZECRETE
BUILDS BETTER REFRACTORY LININGS

If you write maker identify as IEN - 11661

# Acme Steel Announces New Gas-Powered Wire Stitcher

Shippers can now carry on stitching operations even where there are no electrical outlets available, with the new gasoline-powered Acme Steel Wire Stitcher. Powered by a built-in, compact, 1-hp., 4-cycle engine, it's as easy to run as a power lawn-mower. Costs little more than standard models, and opens up a whole new field of economical, mobile wire stitching operations.

For details, ask your Acme Steel representative or write to Acme Steel Products Division, Dept. IEN-103, Acme Steel Company, 2840 Archer Ave., Chicago 8, Ill.

ACME STEEL

STITCH IT...STRAP IT...SHIP IT...SAFELY!

If you write maker identify as IEN - 11662

SEE YOUR DISTRIBUTOR OR WRITE FOR LITERATURE AND INFORMATION

WOOD SPECIALTY *Manufacturing Co.*
DIVISION OF GENERAL CEMENT MFG. CO.
909 Taylor Avenue • Rockford, Illinois

If you write maker identify as IEN - 11663

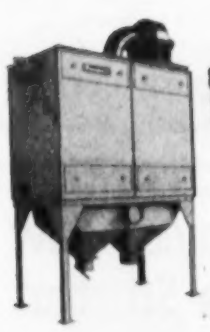
**Here's how Pangborn**
**Solves these Problems**
**with this modern equipment**

**BLAST CLEANING!**

**Blast Cleaning Cabinet** quickly and easily cleans metal parts of rust, grime, dirt, paint, etc. Produces a clean, smooth surface on pieces up to 60" x 36". Models available from $319.00 and up.

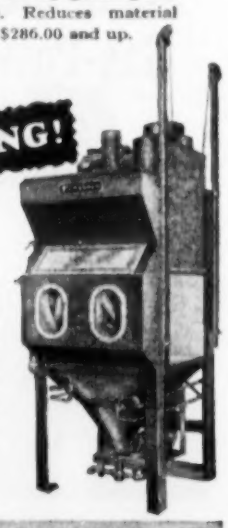
**Blast Cleaning Machine** not only removes rust, dirt, scale, etc., but is ideal for maintenance and many other uses. Cleans large objects such as bridges, structural work, tanks before painting. Six sizes, portable or stationary, from $188.00 and up.

**DUST COLLECTING!**



**Unit Dust Collector** stops dust at its source, minimizes machine wear and tear, reduces housekeeping and general maintenance costs. Solves many grinding and polishing nuisances. Reduces material losses. Models from $286.00 and up.

**PRECISION FINISHING!**



**Hydro-Finish Cabinet** uses liquid blast, eliminating dust, and reduces costly hand polishing, cleaning and finishing of molds, dies, tools, etc. Removes scale, discoloration and directional grinding lines, prepares surfaces for plating and coating. Holds tolerances to .0001". Models from $1,410.00 and up.

LOOK TO PANGBORN FOR THE LATEST DEVELOPMENTS IN BLAST CLEANING AND DUST CONTROL EQUIPMENT

**Pangborn**

MAIL COUPON for full details

(Check for more information)
- ☐ Blast Cleaning Cabinets
- ☐ Blast Cleaning Machines
- ☐ Unit Dust Collectors
- ☐ Hydro-Finish Cabinets

PANGBORN CORP., 2300 Pangborn Blvd., Hagerstown, Md.

Gentlemen: Please send me more information on the equipment I've checked at the left.

Name .....
Company .....
Address .....
City ..... Zone .... State .....

## NEW LITERATURE—Concluded

Identify as IEN - 0810

**LIFT TRUCK . .** Narrow-aisle tiering of 2,000 and 3,000-lb. loads is intended application of the "Warehouse" electric rider straddle truck. Bulletin 1535-B, 6 pages. Yale & Towne Mfg. Co., 11002 Roosevelt Blvd., Philadelphia 15, Pa.

Identify as IEN - 0811

**TUBE FITTINGS . .** Two designs for JIC requirements, Fluid Fortress no-flare type and Griptube flare type, for hydraulic pressure lines. Engineering specifications on both and assembly instructions in 28-page Catalog 553. Flodar Corp., 1346 E. 45th St., Cleveland 3, Ohio

Identify as IEN - 0812

**OPERATING VALVES . .** Pneumatic and hydraulic designs with actuation by hand, solenoid, pilot, cam. Condensed catalog information on types, sizes, uses, in 12-page Bulletin 531. C. B. Hunt & Sons Inc., 1919 E. State St., Salem, Ohio

Identify as IEN - 0813

**WEIGHING . .** Strain gages do the actual weighing of liquids or solids in tanks, hoppers, bins as presented in 8-page Bulletin 4106. Design considerations, instruments employed, sketches showing typical examples, are included. Baldwin-Lima-Hamilton Corp., Paschall P. O., Philadelphia 42, Pa.

Identify as IEN - 0814

**ARC WELDING . .** AC transformer machines and dc. generator machines, selenium rectifer machines, inert-gas-shielded arc units, to 500 amp. Catalog 1340, 44 pages. Air Reduction Sales Co., 1656 Lincoln Bldg., New York 17, N. Y.

Identify as IEN - 0815

**WINCHES . .** Capstan-type car pullers move cars, trucks, trailers, barges and other heavy objects. Selection data and accessories in 8-page Bulletin 753. Stephens-Adamson Mfg. Co., 231 Ridgeway Ave., Aurora, Ill.

Identify as IEN - 0816

**WIRE ROPE . .** Nylon jacket on standard steel wire rope makes it smooth, corrosion resistant, abrasion resistant, attractive in appearance. Flexible sizes $\frac{1}{16}$ to 1 in., rigid $\frac{1}{32}$ to ½ inch. Pocket Catalog, "Wirelon", 16 pages. Rochester Ropes Inc., 52 Rochester St., Culpeper, Va.

Identify as IEN - 0817

**WIRE ROPE FITTINGS . .** Blocks for handling tubing in oil-field service rate 25 to 85 ton. Sizes, specifications and list prices are given in 6-page "Tubing Blocks" bulletin. Johnson Block Co., 502 S. Rockford, Tulsa, Oklahoma

Identify as IEN - 0818

**WOOD WORKING . .** Portable electric saws, sanders, drills, routers, planes and accessories such as saw blades, abrasive blades, belts, kits, stands, cutters, templates and grinders are described in 28-page Catalog 101. Porter-Cable Machine Co., 24 Exchange St., Syracuse 8, N. Y.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

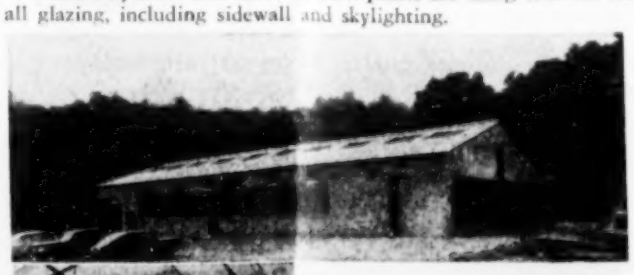
If you write maker identify as IEN - 11665

**END SASH LIGHT REPLACEMENT!**

**Shatterproof—Crackproof Panes of Flat RESOLITE Last Indefinitely**

You can install window and door lights that won't shatter when hit by flying objects; that won't crack when subjected to severe vibration, concussion or intermittant radiant heat. Translucent Resolite — a glass-fiber reinforced polyester resin—is also unaffected by weather extremes of heat, cold or moisture, and by usual industrial fumes.

That's why more and more modern plants are using Resolite for all glazing, including sidewall and skylighting.

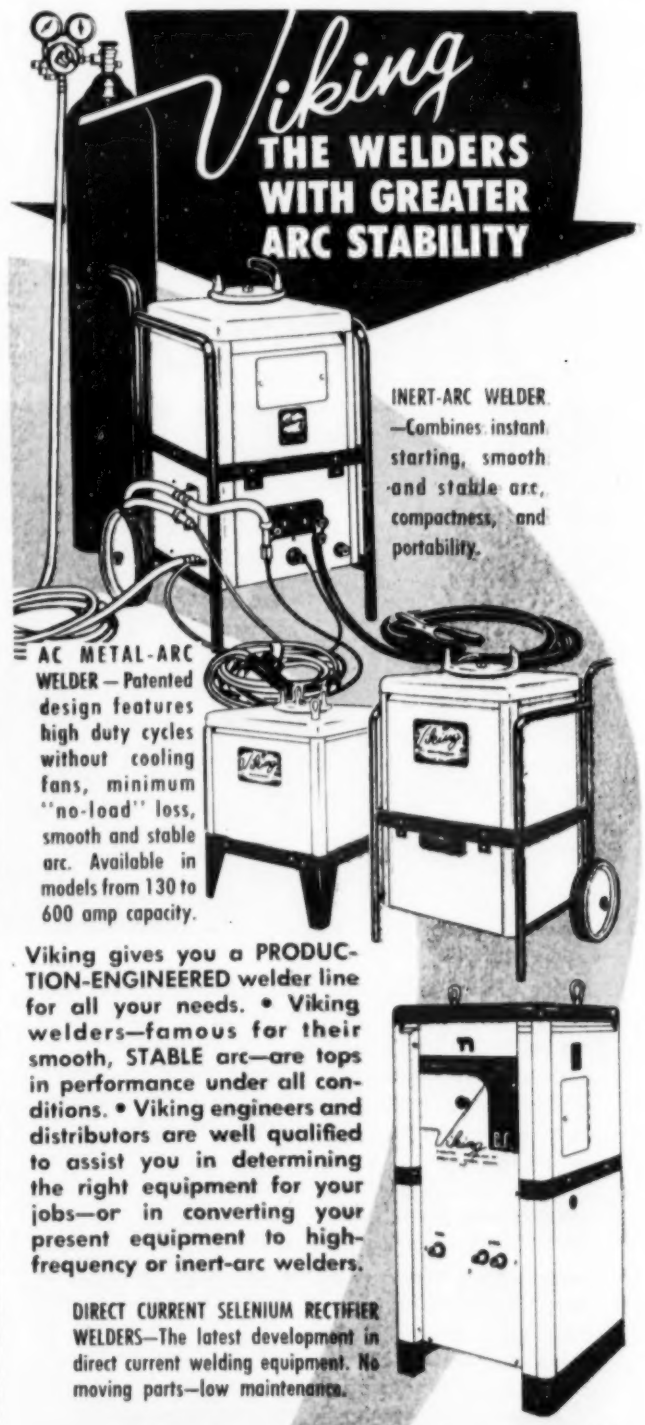


Resolite panes are installed like glass. They are factory cut to size, but can easily be cut on the job. Resolite's uniform diffusion of daylight cuts glare, reduces eyestrain. For complete information and name of nearest distributor, write:

RESOLITE Corp., Box 514, Zelienople, Pa.

If you write maker identify as IEN - 11666

If you write maker identify as IEN - 11667




Viking gives you a PRODUCTION-ENGINEERED welder line for all your needs. • Viking welders—famous for their smooth, STABLE arc—are tops in performance under all conditions. • Viking engineers and distributors are well qualified to assist you in determining the right equipment for your jobs—or in converting your present equipment to high-frequency or inert-arc welders.

DIRECT CURRENT SELENIUM RECTIFIER WELDERS—The latest development in direct current welding equipment. No moving parts—low maintenance.

RAD-ARC-TROL—An automatic high-frequency arc starter and stabilizer for use on ANY MAKE of AC or DC welder. Model MR is used for light gauge metallic-arc welding. Model MRG converts your present welder to the Inert-arc Process. The gas regulating attachment is included in the unit.

*Write for Complete Information on all Viking Welders*

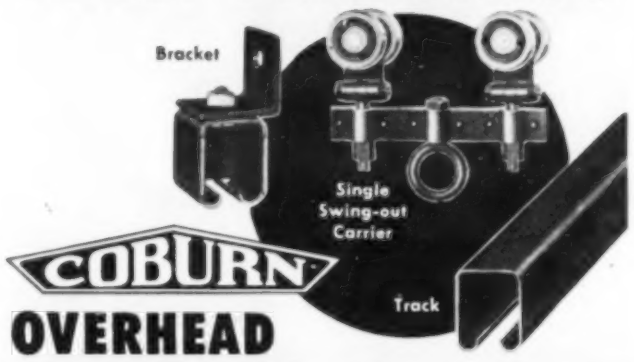
Viking

DIVISION OF PROGRESSIVE WELDER SALES COMPANY

3060 EAST OUTER DRIVE • DETROIT 34, MICHIGAN

*If you write maker identify as* IEN - 11669

# BOOST PRODUCTION




COBURN

## OVERHEAD CONVEYING EQUIPMENT

Meet today's need for maximum plant production, increased efficiency and faster handling of materials with Coburn Overhead Conveying Equipment. It gives you unobstructed floor space, requires very little headroom, makes it easy to spot work directly over machines. Loads up to 3000 lbs. handled by hand chain or electric hoist; power-operated equipment also available.

For additional information write to Sales and Engineering, 56 Sterling St., Clinton, Mass., or consult your classified telephone directory. Write today for catalog #220.

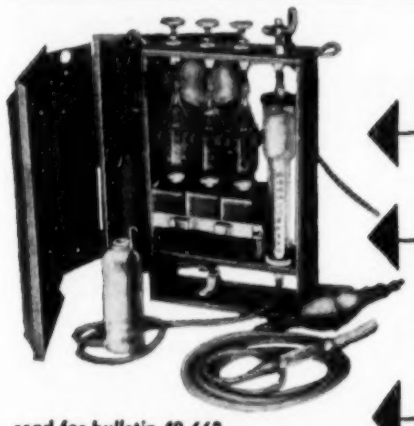
EAST: Wickwire Spencer Steel Division, Clinton, Mass.
WEST: The Colorado Fuel and Iron Corporation, Denver, Colorado
PACIFIC COAST: Pacific Coast Division, Oakland, California

COBURN PRODUCTS
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION CFI

*If you write maker identify as* IEN - 11670

# Analyze for CO, $CO_2$, $O_2$ with one instrument

## HAYS ORSAT GAS ANALYZER



**Complete**—3 absorption units provide complete gas analysis for all the operating engineer's needs.

**Rugged**—built for continuous field use . . . strong, pressed steel construction.

**Portable**—contains everything you need to make a complete analysis . . . in one easy-to-carry case. Compact, yet all parts are easily accessible.

*send for bulletin 49-668 for complete description of all styles.*

The Hays Orsat Type Gas Analyzer is simple, fast, and employs the most reliable method known for obtaining accurate measurement. Available in one, two or three-unit styles (illustrated).

THE **HAYS** CORPORATION
*MICHIGAN CITY 16, INDIANA*
combustion and industrial instruments and control

*If you write maker identify as* IEN - 11671

## FOR PHENOMENAL SAVINGS IN PLANT LAYOUT

TEM BLUE PRINTS

## FROM LAYOUT TO BLUEPRINT WITH NO DRAFTING

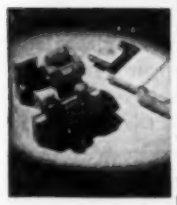
TemPrints are outline prints on transparent film, reproducing to exact scale the standard machines in your plant or made to engineering specifications of your particular equipment . . . TemPrints are also supplied for walls, partitions, windows, office furniture and shipping equipment.

TemPrint Grids are transparent sheets cross-lined to ¼" scale suitable for layout and floor plans.

When TemPrints are cutout and applied to the grids, the result is an accurate layout of your plant or office. Any number of duplicate prints accurately reproduced in the same size may then be made by processing through an Ozalid machine.

SIMPLY MAKE THE LAYOUT — AND
THE LAYOUT WILL MAKE YOUR PRINTS
TEMPRINTS PUT THE PLAN INTO YOUR PLANT

MARINE SCALE INDUSTRIAL MODELS



Marine has specialized in scale models for many years. Marine Miniatures are accurate reproductions to scale of well-known plant machinery and equipment. All models are dimensionally accurate — may be identified instantly. A special catalog is available on request.

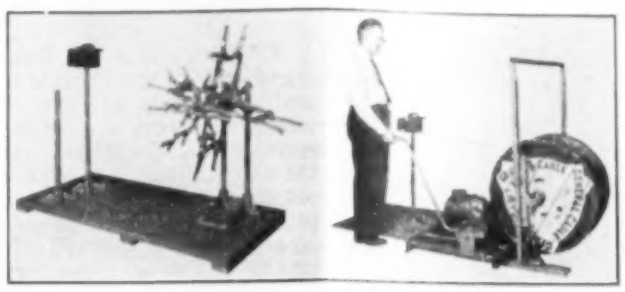
SEND FOR COMPLETE ILLUSTRATED CATALOG TODAY!

HARMAN ASSOCIATES
DEPT. H-3, HALESITE, L. I., N. Y.

*If you write maker identify as* IEN - 11672

## HANDLING . . Wire and cable reels, hydraulic lift, motor drive, counter

Source: NEAL COMPANY
2804-8 Leavenworth St., Omaha 5, Nebr.



**Details and prices upon request**

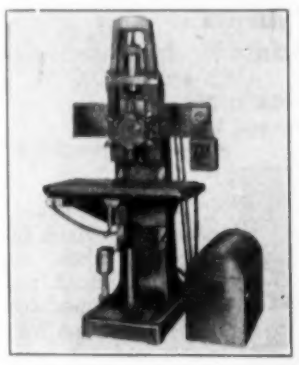
**New assembly** of two reels, on a common shaft and support stand, with a counter and two interchangeable support stands for it are shown to the left in the illustration. The large reel makes coils 21 in. in inside diameter and is designed for heavy wire, cable, cordage, hose and other materials that can be coiled. The small reel makes coils 12 in. in inside diameter and is designed for small and medium wire. It will take 500 ft. of No. 8 Type R rubber covered wire or its equivalent. Both reels are collapsible for coil removal. The counter, shown to the left, can be mounted on one stand or the other to measure the length of material fed on or off the reel.

**To the right** is a new assembly of hand hydraulic hoist mechanism, a pivoted motor drive and the counter to handle heavy coils on reels. Two sizes of this assembly take reels to 52 and 60 in. in diameter by 30 and 36 in. in width. The drive motor and its geared head pivot on the base so a friction wheel on the output shaft can be brought against the rim of the reel to rotate it as required.

*If you write maker identify as* IEN - 11673

## DRILLING . . Turret type machine mounts six selective speed spindles

Source: BURG TOOL MFG. CO.
3741 Durango Ave., Los Angeles 34, Calif.



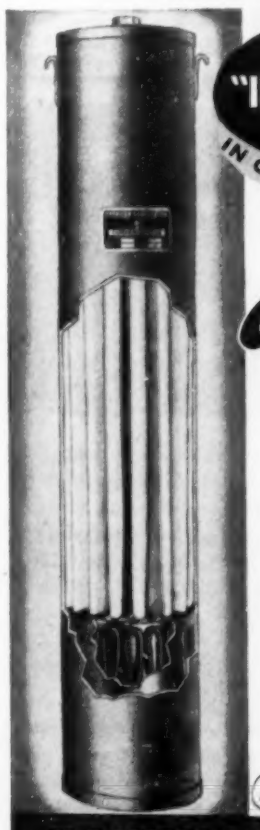
**One second to index**

**Hydraulic feed,** with which this new Model 2BH machine is equipped, provides stepless adjustment. Twelve pre-selective speeds are available for each spindle. The spindles are mounted on ball bearings. The drive and controls include traverse away from the work for threading operations, rapid traverse to the start of a feed cycle, automatic switch to feed to a predetermined depth followed by rapid retraction. Overall dimensions are 60 by 51 by 78 inches.

**Operation** is under automatic control that can be set to employ any number of the spindles and to skip those that are inactive. Table travel measures 19 inches. Speed range is 225 to 3,000 rpm. Drive is by a 1 or 2-hp. motor. Control centers at a pushbutton station to the right in the assembly. The machine represents further development of the Model 2B, previously described IEN-8798-53.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11674



for "INSTRUMENT-QUALITY" AIR
IN COMPRESSED AIR OPERATIONS

HANKISON
MODEL A-100-D
*Condensifilter*

Featuring the New—Economical
DISPOSABLE FILTER CARTRIDGE

- *CONDENSER*
- *MECHANICAL FILTER*
- *AUTOMATIC TRAP*

Combined in a single unit!

RATE OF CAPACITY:
100 scfm at 100 psig

MULTIPLE UNITS:
Installed in parallel increase capacity

*Consult us on your specific problems*

WRITE . . .
for illustrated bulletin DB-130

HANKISON CORPORATION
350 Biltmore Building • 951 Banksville Road • Pittsburgh 16, Pa.

*If you write maker identify as* IEN - 11675

# NEW.. COMPLETE LINE of END MILLS by GO & GO

*SEND FOR CATALOG*

NOW you can get off-the-shelf delivery on end mills that GO & GO . . . New styles . . . Additional sizes . . . Long lengths, extra-long lengths, small diameters and 2" dia. shank heavy duty end mills have been added to provide a complete range, as standardized by the Metal Cutting Tool Institute. The famous GO & GO quality is built into these tools. Write for new, convenient catalog covering all standard end mills and milling cutters.

GODDARD & GODDARD COMPANY
MILLING CUTTER ENGINEERS AND MANUFACTURERS
P. O. Box 68, Brightmoor Station
DETROIT 23, MICHIGAN

*If you write maker identify as* IEN - 11676

"Porto-Power" sure helps me lick production and maintenance jobs . . . 1001 easy ways!

Take it from shop men who know—"Porto-Power" is the handiest time saver money can buy! It's a compact, remotely-controlled pump and hydraulic ram that combines with ingenious attachments . . . to pull, push, clamp, press, bend or spread. Available in 2, 4, 7, 10, 20, and 50-ton capacities. Hand operated or motor driven. Sold by leading distributors. Write for free catalog. Blackhawk Mfg. Co., Dept. P-15103, Milwaukee 1, Wisconsin.

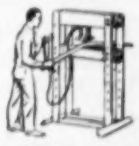
**Lifts Machinery** with toe-lift setup. Ends crowbar strains.

**Apply To Any Span,** one-man operated, eliminates hazardous blocks.

**Pulls Gears,** pulleys, wheels. Saves damage to shafts, bearings.

**Bends Conduit, Pipe.** No kinks or wrinkles. Faster installations.

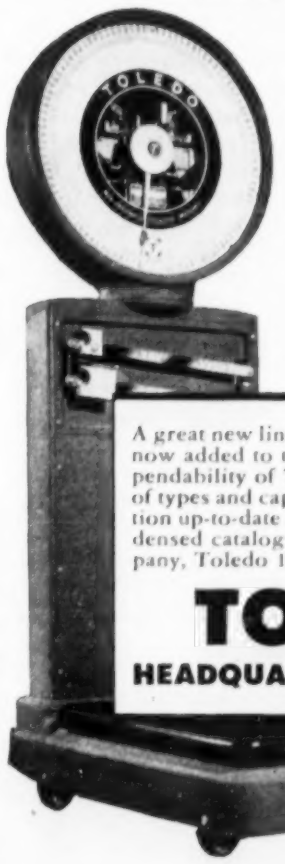
**Bends Rail,** straightens bent parts—often without dismantling.



**Free Blueprints** on how to build low-cost press for "Porto-Power."

BLACKHAWK "Porto-Power" Hydraulic Jacks Hand Tools

*If you write maker identify as* IEN - 11677



new

44 Ways Better

A great new line of Toledos! *44 new features* are now added to the traditional accuracy and dependability of Toledo Scales. Complete range of types and capacities. Get your scale information up-to-date . . . write today for the new condensed catalog No. 2001. Toledo Scale Company, Toledo 1, Ohio.

TOLEDO
HEADQUARTERS FOR SCALES

*Model 2181 —New version of the world's most widely used portable dial scale.*

If you write maker identify as IEN - 11678

From 6" to 24.5" Rubber Tire Diameters.
Pneumatic — Drop Center and Demountable Rim.
Cushion and Solid Rubber Bolted Types.
Heavy Duty Wheels with Molded-on rubber.

DICO COMPANY

Let DICO help you with your wheel problems.

Write for complete catalog.

202 S.W. 16th ST., DES MOINES, IOWA

If you write maker identify as IEN - 11679

## the Safer Hammer that Saves the Surface!

• New IDEAL Cush'N-Blo Hammers are true SAFETY tools, designed and engineered to give you better soft-face hammer performance—*and save you money at the same time!* Formulated of *Nuplaflex* plastic, the replaceable tips outwear ordinary soft-face materials—often by more than 10 to 1. They cannot chip or mushroom under heaviest blows—or "let go" flying particles to endanger workers. Tips are *spark-proof* and securely locked into *spark-proof* heads. They are not affected by oil, grease, gasoline or ordinary industrial acids.

Cush'N-Blo Hammers are carefully balanced for maximum accuracy and driving force. They turn out *more* work and *better* work with minimum effort because they reduce fatigue by reducing rebound.

SOLD THROUGH LEADING DISTRIBUTORS

See Them Now or Mail Coupon for Full Information

• A HAMMER FOR EVERY JOB
5 Diameters
14 Weights
Regular or Shot-Loaded

IDEAL INDUSTRIES, Inc.
1108 Park Avenue, Sycamore, Illinois
Please send catalog data and full description of your Cush'N-Blo Hammers.
Name_____
Company_____
Address_____
City_____ Zone____ State____

If you write maker identify as IEN - 11681

## PRESS . . Power bending brake, three sizes to 120 in. by 16 gage

Source: DREIS & KRUMP MFG. CO.
7416 S. Loomis Blvd., Chicago 36, Ill.

Welded plate design

**Twin plate bed** for lateral rigidity and 1¼-in. slug clearance for punching operations characterizes this new Series-A press brake. Three sizes rate 54 in. by 10 gage to 120 in. by 16 gage. Each has 3-in. stroke and ram adjustment, 12-in. die space and variable speed drive for 20 to 50 strokes per minute.

**A friction clutch** and band brake transmit through a double back gear and twin drive for even power application. The arrangement permits jogging in set-up operations. The ram adjustment is motor driven and designed so one end of the ram can be raised or lowered for tapered work.

If you write maker identify as IEN - 11682

## MARKING . . Waterproof ink for stamp pad marking on plastics

Source: ARTONE COLOR CORP.
19 W. 3rd St., New York 12, N. Y.

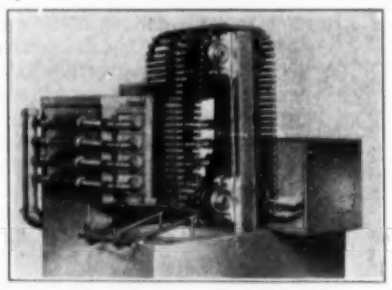
Ounce sample
$1 postpaid

**Four colors,** black, blue, red and violet, have been added to the company's line of waterproof inks, previously described IEN-2579-53. The new ink is intended for stamp pad marking on plastics such as Tenite, Vinylite, Kodapak, Plexiglas and cellulose acetate. It can be employed also on rubber, neoprene, wood, leather and lacquer coated tin. Packaging is in 1-oz. and larger sizes. The ink dries rapidly and cannot be removed by ordinary means.

If you write maker identify as IEN - 11683

## HEATING . . Gas fired furnace for rod ends, automatic hopper feed

Source: GAS APPLIANCE SERVICE INC.
1209-13 Webster St., Chicago 14, Ill.



For a production line

**Hot Rod** designates a new gas fired furnace that takes a continuous run of rods from a hopper feed and heats them for a section length to 4 inches. The machine will take rods measuring 6 to 24 in. in length. It will handle work ranging from ¼ to 1½ in. in diameter. Production rate is 900 rods ½ in. in diameter to a temperature of 1,900 deg. F. per hour. The heated rods are delivered one at a time to a rack at the front of the machine from where they can be taken for processing.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11684

*Fine Gears Made to Order:*
SPIRAL BEVEL
STRAIGHT BEVEL
HYPOID
HERRINGBONE
HELICAL
DIFFERENTIALS
SPUR
WORMS AND WORM GEARS

MASS production of fine gears is an accomplishment that requires the ultimate in manufacturing facilities and experience. And it's all here at Fairfield—metallurgical department, batteries of the most modern machines, complete heat treating equipment, all operated by skilled craftsmen producing truly fine gears. Here is more than 30 years of experience translated into the gear-making "know-how" that is essential to manufacturing high quality, dependable gears.

Our facilities are complete for producing gears for a wide variety of applications. Why not consult Fairfield on your next gear problem? Your inquiry will receive prompt attention.

**FAIRFIELD MANUFACTURING CO.**
2333 S. Concord Road Lafayette, Indiana

If you write maker identify as IEN - 11685

## 3 NEW ITEMS!

**1 Rawl Lag Screw Shields**
Rustproof . . . precision-cast. Ideal for all masonry fastening, especially where "problem masonry" is concerned. Special design assures tremendous holding power.

**2 Rawl Spring Wing Toggle-Bolts**
Unsurpassed for anchoring in hollow walls, sheet metal, etc. Rustproof . . . assure permanent security for fastening or suspending countless utility items.

**3 Rawl Handyman Kit**
Perfect answer for 1001 anchoring jobs. Kit contains twenty #8 x 1" Rawlplugs; assorted screws, eyes, hooks; a 3-point Rawl drill; full installation instructions.

Complete Rawl line meets every anchoring need . . . positively . . . at lower installed cost. Order from your dealer.

The RAWLPLUG CO., Inc.
271 Church St., New York 13, N. Y.

If you write maker identify as IEN - 11686

## PRODUCTION UP COSTS DOWN WITH Commander PRODUCTION TOOLS

### Adjustable MULTI-DRILL

• Adjustable To Any Hole Pattern
• Drill 2 to 8 Holes at 1 Stroke
• Fits Any Drill Press

MODEL 900

Increase production up to 800%—save time, cut costs. Mounted without alterations or special tools. 9" drilling area; centers to ½". Extension Spindles available to increase area to 22½". Special adaptations available.

"the tapper that thinks for its operator"

### Commander TAPPER

• Wider Range . . . 1 Tapper Handles #0 to ¾" Taps
• Automatic Tap Protection
• Furnished to Fit Any Drill Press

Adjustable full range torque control instantly stops any tap when it's dull, loaded, strikes a hard spot, or bottoms in blind hole tapping. Assures maximum production, cuts rejects, even with inexperienced operators.

### SELECT A SPINDLE

• Drills, Reams, Taps on 1 Drill Press Spindle
• Increases Production • Improves Accuracy
• Reduces Costs • Can be Used on Any Drill Press

Save time, reduce handling with a Commander SELECT-A-SPINDLE Dual Speed Turret Head. Speed selection on each spindle permits tapping, drilling, reaming at recommended speed. Taps on 1, 2 or all 3 spindles Positive indexing of head without stopping motor. Ruggedly built for high production work.

*See us at Booth 835, Metal Show, Cleveland, October 19-23.*

Write FOR CATALOG #851 and the name of your nearby Commander Distributor.

Commander MFG. CO.
4219 W. KINZIE STREET
CHICAGO 24, ILLINOIS

If you write maker identify as IEN - 11688


NEW

SEND FOR THIS BULLETIN 210 TODAY

Get All the Facts!
BULLETIN 210 CONTAINS

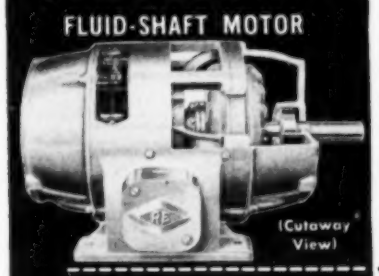
Representatives in Principal Cities
DOLLINGER CORPORATION
3 Centre Park, Rochester 3, New York


If you write maker identify as IEN - 11689


motor design problem?

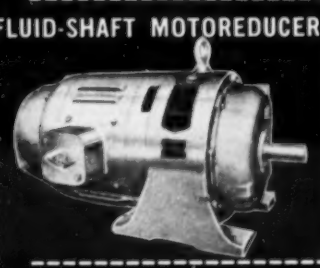
...maybe one of these REULAND "specials" will solve it!

FLUID-SHAFT MOTOR




Motor with *internal* fluid coupling. Provides smooth load acceleration. More compact than separate motor and coupling. Assures *perfect alignment*. Will start heavier loads than standard motors of same horsepower. Used on cranes, conveyors, etc.

FLUID-SHAFT MOTOREDUCER

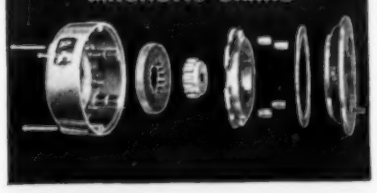


Consists of Reuland Fluid-Shaft motor and gear reducer as one compact unit. Converts the motor's conventional high speed into a slow speed, high torque output. Provides smooth starts. Prevents equipment jamming. Used on cranes, hoists, car pullers, etc.

RIGHT-ANGLE MOTOREDUCER

Consists of Reuland motor and worm gear reducer. Provides unlimited mounting versatility. Permits use of 1 high speed and 2 slow speed power-take-offs, if desired. Ideal for designing into cramped quarters. Also available with Fluid-Shaft drive motor.

THROUGH-SHAFT MAGNETIC BRAKE



"Doughnut" type design allows extension of shaft entirely through brake. Permits use of TWO output shafts per motor. Can be mounted on the input or output shafts (or both) of Fluid-Shaft motors and motoreducers. Only 6 major parts...self adjusting... half usual length.

OVER 600 SPECIAL ELECTRIC MOTOR DESIGNS

Whatever your drive problems may be, there is a good chance that the Reuland "library of specials" contains a unit that is already tailored to your needs. Its availability will save development work and put you in production faster.

Write today, outlining your particular problem. No obligation, of course.

REULAND ELECTRIC COMPANY

WESTERN DIVISION—Alhambra, Calif. • EASTERN DIVISION—Howell, Mich.

DISTRIBUTORS IN ALL PRINCIPAL CITIES


If you write maker identify as IEN - 11691

## LUBRICATING . . Drip feed oiler employs transparent Tenite reservoir

**Source: FLOW EQUIPMENT CO.**
**5331-35 S. District Blvd., Los Angeles 22, Calif.**

**Patent applied for**

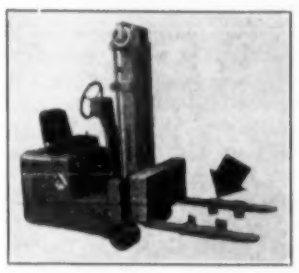
**Feed** rate can be set for one drop in 10 min. to 10 sec. by adjusting the oil level control tube between the upper reservoir and the base bowl in this new Sure-Flow oiler. Oil level rises in the bowl to the bottom lip of the tube where it is stopped by action of the air trapped in the upper quart reservoir. Wicks pick up the oil and feed it to one or more outlets, the level in the bowl determining the rate. The reservoir lifts off the bowl for refilling. It is held in place by a strap spring as shown in the illustration.

**Reservoir** and bowl are made of transparent non-breakable Tenite plastic. The threaded base, solid with the bowl, is made of brass and is threaded for ½-in. pipe support. Oil lines feed from ¼-in. tube connections threaded on the base. Two are shown in the illustration. List price is $8 for the quart unit with one oil outlet. The oiler has been employed for some time in the oil industry. It is offered now for general use.

If you write maker identify as IEN - 11692

## TRUCK . . Clamping fork attachment to handle drums, barrels, to 2 ton

**Source: LEWIS-SHEPARD INCORPORATED**
**190 Walnut St., Dept. R-27, Watertown 72, Mass.**



**Hydraulic operation**

**The load forks** in this new attachment are moved laterally, toward and away from each other, by two double acting hydraulic cylinders. One controls the other so the movement is equal on the two sides. The forks are equipped with shoes for loads that are not sufficiently rigid to take the squeeze of the fork sides alone.

**The shoes** can be removed and the attachment employed as a means to adjust the fork width for varying loads. Application is shown on one of the company's Model-J electric fork trucks. Normal adjustment is 15 in. or 7½ in. on each side.

If you write maker identify as IEN - 11693

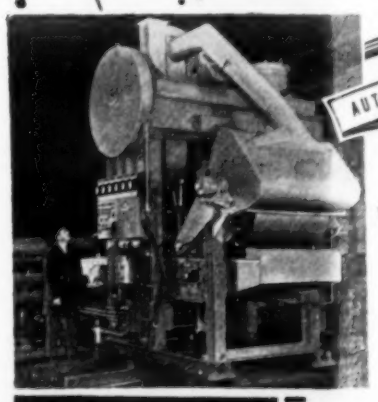
**You are safer now,** when you are up in the clouds, thanks to the new electronic control equipment developed by Remington Rand Inc., 1900 W. Minnehaha Ave., St. Paul W4, Minn. Flight plans can be stored electronically and compared for as many as 2,000 planes at one time. Departure time, fuel load, destination, route, payload are transmitted by teletype for each plane. The electronic equipment compares the data with all other current flight plans and revises, cancels or brings them up to date. The results are transmitted back to the sender almost immediately.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11694


• NORTH ERIE • NORTH ERIE • NORTH ERIE •

NORTH ENGINEERING ... FOR LOWER COST PRODUCTION



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AUTOMATIC FABRICATION and WORK HANDLING EQUIPMENT
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PRODUCTION TOOLING and SPECIAL MACHINERY

NORTH Erie

THE H. W. NORTH Co.
1743 PARADE STREET
ERIE, PENNSYLVANIA


If you write maker identify as IEN - 11695


NEW DENISON Flow Control Valves

Optional range of minimum-maximum adjustment — to 3000 psi — without changing spools.

Now you can have full-scale regulation of your adjustable speed circuits *regardless of pump delivery.* Denison Flow Control Valves adjust easily to various pump deliveries *without changing spools.* Simplified, cartridge-type single-spool design . . . ideal for meter-in, bleed-off and other operations at all circuit pressures to 3000 psi. *For extra safety,* valve bodies are built to withstand 5000 psi. Twelve models, 2-port and 3-port types, with or without built-in check, in sizes ¼", ⅜" and ¾". 0 to 28 gpm capacities. Write for details!

"The Finest Money Can Buy!"

Pumps, Pumping Units, Fluid Motors, Controls

DENISON HydrOIlics

The DENISON Engineering Company
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Columbus 16, Ohio


If you write maker identify as IEN - 11696


M·S·A-LAMB AIR-MOVER

For Rapid Movement of Large Volumes of Air

This practical, portable ventilating device uses only compressed air or steam—no auxiliary motors, turbines or fans. No up-keep because there are no moving parts. Three sizes—3 in., 6 in., and 10 in. Largest size moves as much as 5,160 cu. ft. of air per minute. Write for details.

FORCES FRESH OR COOL AIR IN

SUCKS FUMES OF GASES OUT

MSA SAFETY EQUIPMENT HEADQUARTERS

MINE SAFETY APPLIANCES CO.
201 N. Braddock Ave., Pittsburgh 8, Pa.
76 Branch Offices in the United States


If you write maker identify as IEN - 11697

You get ALL these features when you buy PET DRILLS!

If you want the best, take an extra look at the PET Superduty Drill above! Here's a continuous-duty drill—built to *work* right and *handle* right.

And, the price is right, too! All features shown are *standard* in PET Superduty Drills—at a *standard drill price!* Complete line of 54 ¼", ⅜" and ½" models gives you wide selection—in pistol or saw-type grip. Use coupon below to get complete facts!

PORTABLE ELECTRIC TOOLS, INC., 320 W. 83rd St., Dept. IE-103, Chicago
In Canada: Portable Electric Tools, Ltd., 452 Birchmount Rd., Toronto

MAIL COUPON FOR FREE BULLETIN

Please send me free PET Superduty Catalog and name of nearest distributor.

Name _____ Title _____
Company _____
Address _____
City _____ State _____

*If you write maker identify as* IEN - 11698

What power for fork trucks?

## GET THE FACTS . . . FREE!

Here's your chance to slash through the fog that surrounds the Gas vs. Electric Fork Truck question! Lewis-Shepard's *completely new* digest of manufacturer and user studies gets to the heart of the matter—tells you why electrics are best . . . and *Lewis-Shepards are the best electrics.* Get these facts TODAY. Call your local L-S Representative listed under "Trucks, Industrial" in the Yellow Pages or write direct.

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**LEWIS-SHEPARD®**

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The Most Complete Line of Materials Handling Trucks

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## Solve straight-line motion problems

with

## O-M (air · hydraulic) CYLINDERS

- elevating
- lowering
- pushing
- pulling
- tilting
- clamping
- opening
- closing
- knock-out operations

From a smooth, delicate push on a testing machine to a rugged thrust on a press application, O-M Cylinders handle all straight-line motion problems with ease and precision. *Special interlocking mechanism* eliminates needless tie rods, end caps . . . saves 1/3 INSTALLATION SPACE. Also assures better alignment, gives O-M the lowest coefficient of friction of *any* cylinder . . . smoother performance at low or high pressure regardless of length of stroke. End plugs tapped for universal mounting. Any one or combination of mounting brackets may be used to install . . . *without disassembling or changing cylinder.* Easily removed, inspected, repaired. 14 DAY DELIVERY ON MOST SIZES.

***Available in a full range of sizes*** (1½" to 8" bores) with standard, 2 to 1 or oversize rods. All machined steel with bearing bronze, no castings. Completely interchangeable parts.

***Send today for FREE catalog*** and complete set of ½ and ¼ scale templates showing all cylinders and mounting brackets.

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1208 150th Street • Hammond, Indiana

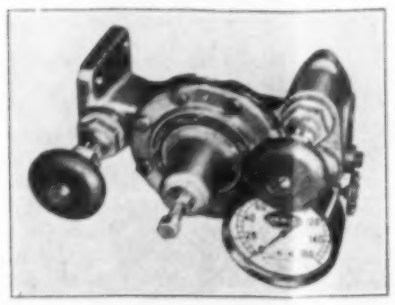
☐ Please send latest O-M catalog. ☐ Complete set of templates.

Name.....
Company.....
Address.....
City..... Zone..... State.....

*If you write maker identify as* IEN - 11701

## VALVE . . Pressure regulator in unit assembly with valves and gage

**Source: DANLY MACHINE SPECIALTIES INC.**
**2102 S. Laramie Ave., Chicago 50, Ill.**



Mounts on inlet flange

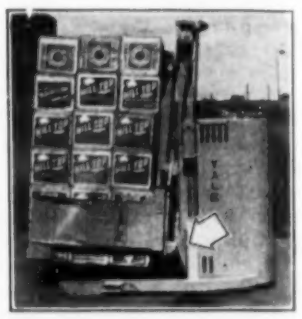
**Air Control** Manifold is a new assembly of pressure regulator, four valves, a pressure gage and a body that eliminates the need for interconnecting fittings. A globe valve is employed for shutoff service on the inlet. A needle valve protects the regulator against line fluctuations. A check valve prevents reverse flow through the regulator and a second globe valve controls the outlet. Distance from inlet to outlet is 10 inches.

**The assembly** applies singly or in manifolded multiple on air controlled equipment. Its purpose is to minimize pipe fitting requirements and the chance for mis-assembly and leakage in service. Headers can be employed to add filters and lubricators to the pressure controlled lines.

*If you write maker identify as* IEN - 11702

## TRUCK . . Load clamp attachment tilts back in load carrying position

**Source: YALE & TOWNE MFG. CO.**
**11002 Roosevelt Blvd., Philadelphia 15, Pa.**



Stacks in 6 ft. aisle

**New attachment,** with hydraulically operated side clamping plates, applies on the Warehouser rider type motor operated truck, previously described IEN-2056-53. The clamp mechanism rides the lift carriage on the truck in connection with a cam and roller on each side.

**The cam** causes the attachment to tilt 4½ deg. to the rear when a load is lifted from the floor to carrying position. This results in load stability and is particularly suited for light or awkwardly shaped loads that must be moved over uneven floor surfaces.

**The truck** is available in 1 and 1½ ton ratings with load lift maximum at 133 inches. The battery is mounted on rollers in its compartment for quick removal from top or side.

*If you write maker identify as* IEN - 11703

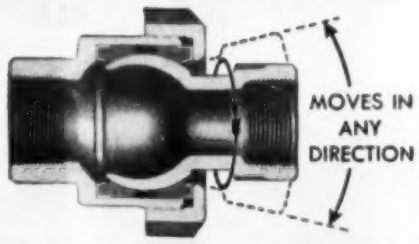
**Office furniture** can be rented instead of purchased under a new "Lease Plan" established by Globe-Wernicke Co., Carthage & Ross, Cincinnati 12, Ohio. The company's dealers lease the equipment for a minimum period of three years. The customer agrees to pay a diminishing yearly rental in quarterly or monthly installments which can be charged off to operating expense since no capital investment is involved It all is explained in a booklet, "Lease Plan".

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11704

**BARCO** *Flexible* **BALL JOINTS**

—when you need movable joints in piping handling




**STEAM, OIL, CHEMICALS**

Send for New Bulletin No. 215

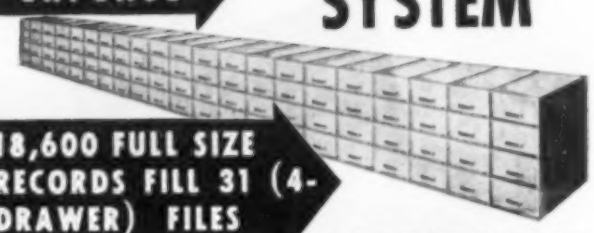
- Provides for movement in piping—up to 40° side flexibility, plus 360° rotating movement.
- Stainless steel and chemically inert gaskets for strong chemicals. No metal-to-metal contact. Choice of body materials.
- One Barco Ball Joint does the work of two or more ordinary swivel joints because "it moves in any direction!"
- Many models available. For pressures to 6,000 psi; temperatures to 1000° F. 15 different sizes, ¼" to 12". *Ask for recommendations.* BARCO MFG. CO., 538L Hough St., Barrington, Ill.

*THE ONLY TRULY COMPLETE LINE OF FLEXIBLE BALL, SWIVEL, SWING AND REVOLVING JOINTS*

*If you write maker identify as* IEN - 11705

SAVE TIME, SPACE AND EXPENSE WITH THE NEW

## MICROCARD SYSTEM



18,600 FULL SIZE RECORDS FILL 31 (4-DRAWER) FILES

AT A COST OF ABOUT $6,400.00

IN MICROCARD FORM THESE RECORDS CAN BE STORED IN ONE SMALL CARD FILE

AT A COST OF ABOUT $400.00

WRITE TODAY
For Complete Information.

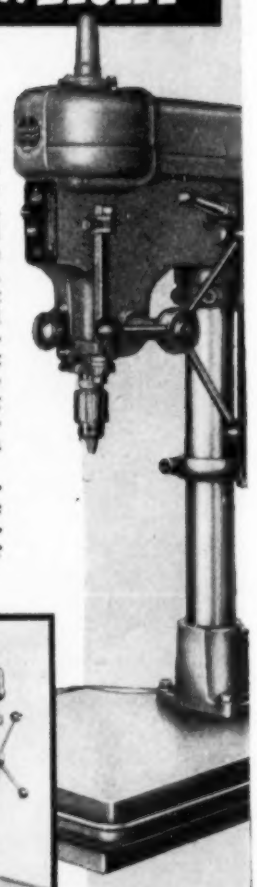
Spend pennies now where dollars were disappearing! New MICROCARD SYSTEM is the economical, quick to find, read, and refile method of record storage. Figures available on your industry application.

**MICROCARD CORP. • READER DIVISION**
Box 314D • La Crosse, Wisconsin
Arrangements made with Kodak Ltd. of England to produce a similar reader

*If you write maker identify as* IEN - 11706

## Greater Machine-Ability with WALKER-TURNER

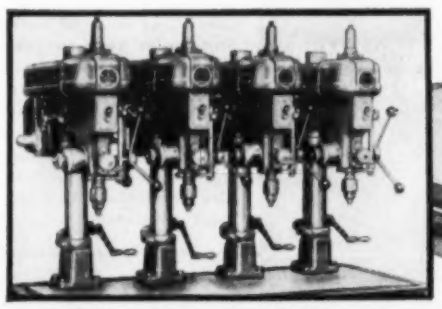
## *LIGHT-HEAVYWEIGHT* MACHINES



Here is your opportunity to make your plants more productive, to save important money. *Light-heavyweights* may be used alone, or in combinations, adapted easily to special jigs and fixtures, moved about wherever needed. They're simple to operate, low in upkeep.

Designed to fill the important gap between hobby-type tools and high-priced machine tools, *light-heavyweights* provide the most efficient way to handle a wide variety of metal and woodworking jobs—at a relatively small investment (a dozen may cost less than one big machine tool).

Investigate versatile *light-heavyweights* now. Write for complete information or have the *factory-trained* Walker-Turner distributor in your area call on you.



**15" Light-Heavyweight Drill Presses**
**6" Spindle Travel**
**Multi-Spindle Models**

For fast, accurate drilling at new low levels of investment and production costs. Features calibrated depth indicator. Capacity 4 Spindle Production Model (shown) 15½" chuck to table, 7½" center of chuck to column. Six spline spindle mounted on 2 ball bearings. Four speeds—600, 1250, 2440 and 5000 r.p.m. with 1750 r.p.m. motor. Available with 6" or 4" spindle travel, in bench, floor and multi-spindle models (from two to any desired number of spindles.)

15" Production Model

6" Spindle Travel

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• DIVISION •
KEARNEY AND TRECKER CORPORATION
PLAINFIELD, N. J.

DRILL PRESSES—Hand and Power Feed • RADIAL DRILLS Wood and Metal Cutting BAND SAWS • TILTING ARBOR SAWS • RADIAL SAWS • JIG SAWS • LATHES SPINDLE SHAPERS • JOINTERS • BELT AND DISC SURFACERS • FLEXIBLE SHAFT MACHINES

SOLD THROUGH *FACTORY-TRAINED* INDUSTRIAL DISTRIBUTORS

*Use this space . . .*
to send for full details and specifications.
Walker-Turner Division, Kearney & Trecker Corp.
Dept. IE-10, Plainfield, N. J.

*If you write maker identify as* IEN - 11708

# are you using hardfacing effectively ?

**BE SURE—READ AMSCO'S NEW CATALOG ON HARDFACING ALLOYS**

Whatever the application, the new Amsco Catalog gives you complete analyses, metallurgical information, and other pertinent data about Amsco's line of automatic and manual hardfacing alloys. You can look up the right rod to use for hundreds of the more common applications. And for those extra tough jobs, you'll find the section on How to Select a Hardfacing Alloy indispensable. This new catalog is easy to understand and to apply its suggestions to your own operations.

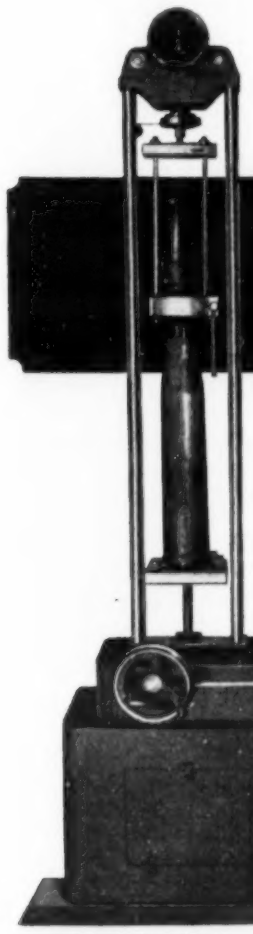
*It's FREE—write to Amsco today*

AMERICAN Brake Shoe COMPANY

**AMERICAN MANGANESE STEEL DIVISION**
415 East 14th Street • Chicago Heights, Ill.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division Joliette, Que. Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

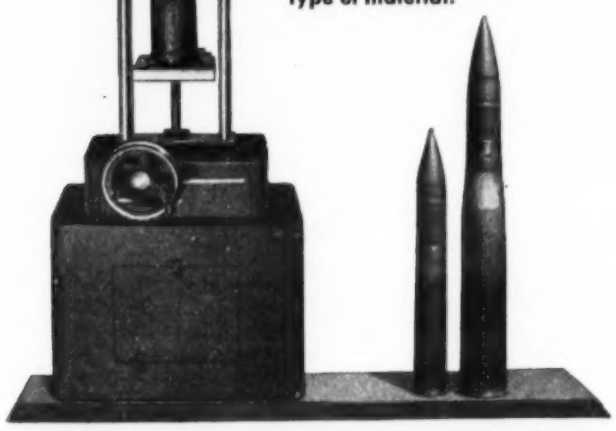
*If you write maker identify as* IEN - 11709



**No Testing Problem is "too special" for the**

# Dillon UNIVERSAL TESTER

**Special versions of the Dillon Tester can be furnished to handle virtually any size, shape or type of material.**



*A typical application of the Dillon Universal Tester used to pull projectile from case to determine effectiveness of crimp.*

Pictured here is just one of the hundreds of problems handled by inexpensive Dillon Testers. Not only do they check every conceivable *type* of material, but also both standard and *special* shapes. Interchangeable fixtures permit tensile, compression, transverse and shear tests. Capacities range from 0-250 to 0-10,000 lbs. Motorized or hand-operated.

With a Dillon Tester, any average employee can handle all your testing problems after just a few minutes' instruction . . . right in your own shop. Consult us for the practical solution to YOUR testing problems.

Sales Reps. Territories OPEN WRITE ★ *WRITE FOR ILLUSTRATED BULLETIN . . . . . .*

**W. C. DILLON & CO., INC.**
PRECISION INSTRUMENTS FOR PRECISION TESTING
14602K Keswick St., Van Nuys, Calif. (Suburb of Los Angeles)

*If you write maker identify as* IEN - 11711

## MARKING . . Self-adhesive labels strip easily from card for application

**Source: W. H. BRADY COMPANY**
**725-29 W. Glendale Ave., Dept. 83, Milwaukee 12, Wis.**

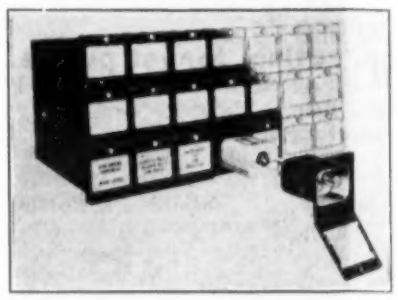
**Sample on request**

Blue Streak "adhesive" designates new process developed for application of the company's self-adhesive labels on their carrying cards, particularly the large sizes. The process has no effect on the adhesive employed on the label other than to cause it to release readily when it is stripped from the card. Typical labels include pipe and conduit markers, safety signs, container markers, fluid line markers, write-on labels, Quik-Masks and Quik-Sign stencils.

*If you write maker identify as* IEN - 11712

## SIGNALING . . Electric annunciator indicates normal, abnormal conditions

**Source: SCAM INSTRUMENT CORP.**
**3907-11 W. Irving Park, Chicago 18, Ill.**



**Cabinet Model ACS-C**

Five sizes of standard cabinet, measuring one to 11 units in width, are available in this new self-monitoring annunciator equipment. The units can be stacked on top of each other or set up side by side. Single units are available, without the cabinet, for graphic panel installation. The operating relay and its control circuits are built into a plug-in assembly that slides into place in the housing. A lamp box applies in front of this plug-in unit. It is available as a bulls-eye or a back lighted nameplate.

**The relay unit** signals its own failure as well as outside circuit defects and can be employed with normally open or normally closed field signals. Change can be made from one to the other in the field. Auxiliary contacts in this unit, also normally open or normally closed, are actuated by the field signal and can be used to correct an abnormal field condition or provide an additional alarm or other control function. An optional lock-in mechanism will hold a momentary alarm.

*If you write maker identify as* IEN - 11713

**Permaproof 300** is a new compound to process cotton cloth that is to be used in safety garments. The processed cloth is impervious to combustion at elevated temperatures. It retains this quality after repeated launderings. Workers protected by garments made of the cloth have been subjected to hot metal showers and explosions from slag without suffering body burns. The process is applied to the cloth in the final finishing operations in the textile mill. Treesdale Laboratories, 753 Benedum Trees Bldg., Pittsburgh 22, Pa., supplies the compound.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 56*

*If you write maker identify as* IEN - 11714

**Immediate Delivery**

*Buy Direct from the Manufacturer and Save*

**Francis** EST. 1880. **FACTORY-MILL & WAREHOUSE TRUCKS**

*Cutting Handling Costs since 1880*

**WRITE** *TODAY for catalog and prices*

**3000-lb capacity**

**Complete Line —** For every use. Standard sizes 27" x 48" and 30" x 54" in stock ready for immediate shipment.

Need more good trucks quick? Buy direct from the manufacturer and save —time AND money. Francis heavy duty, economical trucks feature strong iron work —hardwood frame—rigid construction. All carefully machine fitted. Steel rims or rubber tires.

*Manufactured by*
**HOOSIER FENCE CO. Inc.**
Dept. IEN 1701 E. 38th St., Indianapolis, Ind.

*If you write maker identify as* IEN - 11715

# Viscous Materials

**FLOW LIKE WATER**

*through*

## Parks-Cramer Jacketed Pipe and Fittings

You can't find a better way to convey asphalt, rosin, wax, sulphur, gums, syrups, or other high melting point solid or viscous materials than through Parks-Cramer Jacketed Lines.

Steam, hot water, hot oil, or Dowtherm keep the contents in a quick moving liquid state. Plug-ups are eliminated.

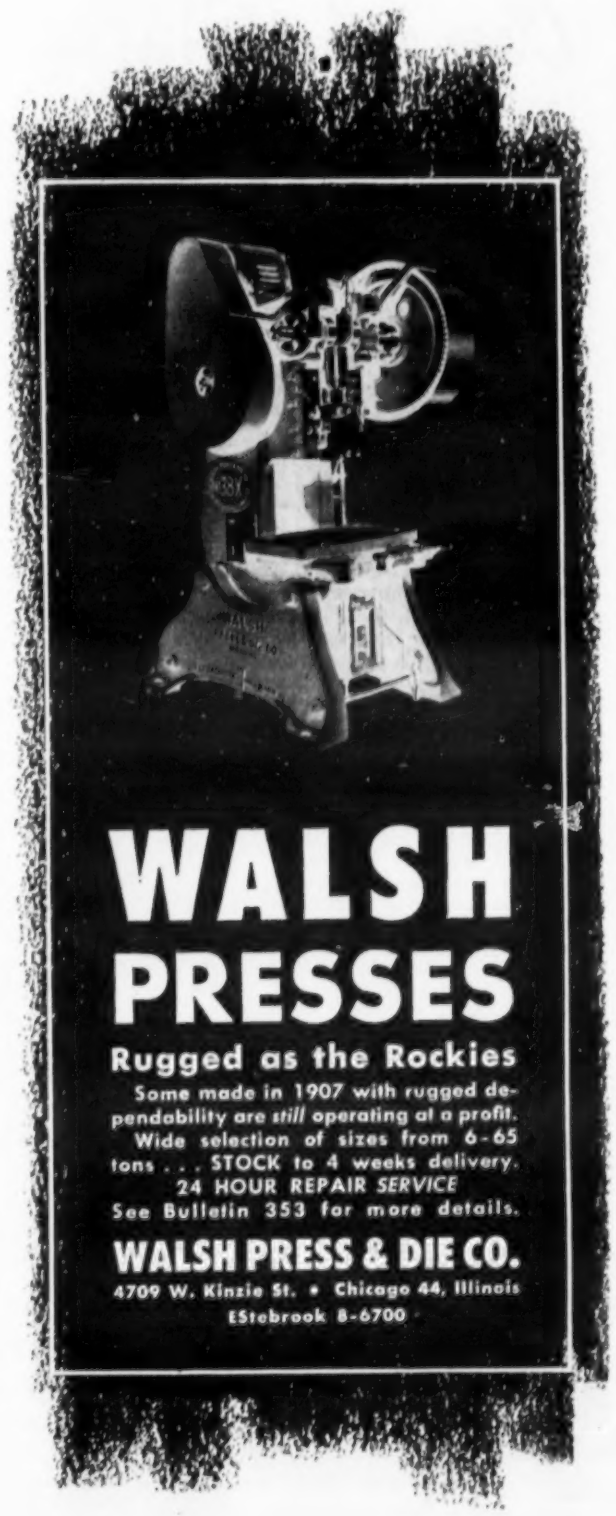
Jacketed Cocks and Fittings are cast in semi-steel, Ductile iron, Ni-Resist and many other materials.

Pipes and Fittings are made in standard sizes with 1¼", 1½", 2", 3", and 4" inside diameter, and include Two-way and Three-way Cocks, Tees, Crosses, 90° and 45° Elbows, and Expansion Joints and Strainers, also 2" and 3" Relief Valves.

*Write for Bulletin No. 152E*

**Parks-Cramer Company**
ENGINEERS and CONTRACTORS
Fitchburg, Massachusetts

*If you write maker identify as* IEN - 11716



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**Rugged as the Rockies**

Some made in 1907 with rugged dependability are *still* operating at a profit. Wide selection of sizes from 6-65 tons . . . STOCK to 4 weeks delivery. 24 HOUR REPAIR *SERVICE* See Bulletin 353 for more details.

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Division of
**AMERICAN GAGE and MACHINE CO.**
SIMPSON ELECTRIC COMPANY SIZE CONTROL COMPANY
WALSH PRESS & DIE COMPANY

If you write maker identify as IEN - 11718

## Meet every test in copper line service

**JENKINS Solder-End VALVES**

**Easy to install**
— accurate fit to tubing

**Positive control**
— will not distort under intense heat of soldering

**Lasting economy**
— designed with an extra measure of endurance to withstand unusual strain in operation

SEND FOR THIS NEW FOLDER

Describes complete line of Jenkins Solder End Valves, gives dimensions, and instructions for installation. Ask your Jenkins Distributor for Form 198, or write for your copy today. Jenkins Bros., 100 Park Ave., New York 17.

LOOK FOR THIS DIAMOND MARK

**JENKINS VALVES**

SINCE 1864

If you write maker identify as IEN - 11719

## COME *Clean with a* Clarke

Thirty-five years of Clarke know-how are built into Clarke floor maintenance machines to do your cleaning easier, faster and **better.** A Clarke does the job month after month without repair expense because it's job-designed and built for years of rugged service. That's why you should investigate Clarke **before you consider any other floor maintenance** equipment.

**WD-23 WET-DRY VACUUM**

No cleaning job — wet or dry — is too big for the WD-23 Wet-Dry Vacuum. Heavy porcelainized tank, inside and out, resists rust. Handy dump valve eliminates heavy lifting. Handy attachments available. Model WD-15 for smaller area jobs.

**P-17 FLOOR MAINTAINER**
(With Water Tank Attachment)

Scrubbing a floor spotlessly clean is no chore for this Clarke P-17 floor maintainer (shown with water tank attachment, available at slight extra cost). Works easily on any type floor.

**Clarke** SANDING MACHINE COMPANY
284 East Clay Avenue, Muskegon, Mich.
*Authorized Sales and Service in Principal Cities*

**SEND TODAY!**

Send this coupon for full, colorful details on Clarke floor maintenance equipment that will save you working time — and money.

Clarke Sanding Machine Company
2810 East Clay Avenue, Muskegon, Michigan

Please send me full details on Clarke equipment and the name of my nearest dealer.

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE____

If you write maker identify as IEN - 11721

## GRINDING . . Thinning attachment for webs to add to drill grinder

Source: KURT ORBAN CO.
204 E. 43rd St., New York 17, N. Y.

For Cawl-Spiral machines

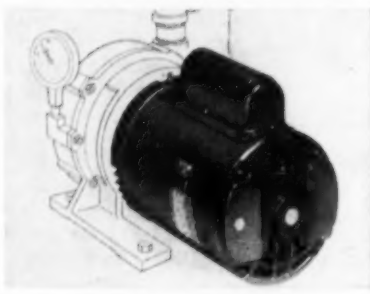
**Web thinning,** previously carried out in free hand manner on the Cawl-Spiral grinding machine, is now performed by a mechanical attachment. It includes an indexing device which turns the chuck and the drill, after thinning one side of the web, so the grinding wheel enters the reverse side of the drill in exactly the same position and only one drill setup is required. The attachment can be applied on new machines of the company's manufacture or on those that are now in service in the field.

**The machine** mounts two grinding wheels, one for the thinning operation and one that rotates in connection with planetary gearing to turn and present two and three lip drills for sharpening. Two chucks will handle drills ranging from 0.028 to 1 inch. The chucks are interchanged in about a minute. They open and close by hand.

If you write maker identify as IEN - 11722

## MOTOR . . Single phase ac., ¼ to 1 hp. rating, for jet pumps

Source: GENERAL ELECTRIC CO.
Dept. 6X-201, Schenectady 5, N. Y.



Bulletin GEA-5902

**NEMA** standards for mounting and shaft dimensions apply in this new Form-G motor. It has been developed particularly for jet pump drive and is available in five capacitor start models rating from ¼ to 1 hp. The motor mounts horizontally or vertically. It employs a drip cap over its top end frame in the latter type of mounting.

**Construction** employs DuPont Mylar slot and between-phase insulation, Formex wire winding, Clyptal varnish. The shell is made of steel. The end frames are aluminum. The ball bearings are lubricated through pressure fittings and are locked in place to take end thrust from the pump. A fan draws air in at the driving end, pushes it through the windings to the rear end. A switch is an integral part of the assembly. A thermal protector guards against overload.

If you write maker identify as IEN - 11723

**Towmotor** Corporation, 1224-28 E. 152nd St., Cleveland 10, Ohio, offers a new "protector" for its load lifting cylinder and piston on its fork lift trucks. It is a cylindrical unit that telescopes over the cylinder, moves up and down with the piston. It is particularly suited for trucks handling bulk materials.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11724

**$34.50**

**Sands Cleans Smooths Polishes**

Three 4½" x 6½" coverings cut from standard 9" x 11" abrasion sheet.

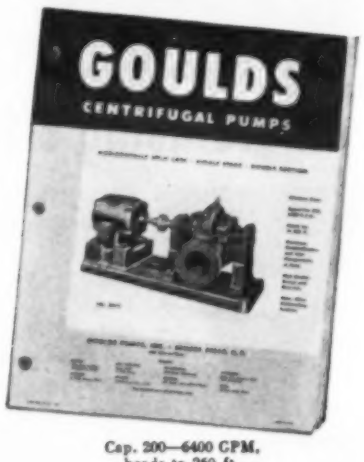
Makes a hundred tedious jobs fast and easy. Will sand to the bare wood or metal, featheredge, or smooth and polish to a "piano finish." Powerful direct-connect, 3450 r.p.m. 110 v., A.C. air-cooled motor. No gears, nor gear-housing to collect grit and dust. Sealed ball-bearing thruout. Cast-aluminum body and chrome plated—in hand weight only 5 lbs. Natural grip, all-position handle with sliding thumb switch and 3 wire rubber-covered cord.

WRITE FOR CIRCULAR

**Speed Way MANUFACTURING CO.**
1885 So. 52nd Avenue • Cicero 50, Illinois

If you write maker identify as IEN - 11725

## 12 pages of facts about a NEW LINE of 19 pumps




Cap. 200—6400 GPM.
heads to 260 ft.

Here's good news for pump buyers. The new Goulds Bulletin No. 721.6 gives you a host of information on the *extra* design features that are *standard* on Goulds new Fig. 3405 pumps.

Included are stuffing box bushings, steel-impeller keys, Teflon water seal rings — to mention a few.

This pump construction requires only three shaft and rotating parts assemblies (exclusive of wearing rings and impellers) to provide for 19 pump sizes.

But, get all the facts on how you can save on down time, maintenance costs and spare parts inventories. Write for Bulletin 721.6 today.

**Goulds PUMPS INC.**
*Seneca Falls New York*

If you write maker identify as IEN - 11726

## instruments for measuring light

Completely self-contained, permanently calibrated, and color corrected, Weston Light Measuring Instruments are available for practically all requirements in research, factory, office or home. A bulletin giving complete details on all models and on color and cosine correction features is available on request. WESTON Electrical Instrument Corporation, 614 Frelinghuysen Avenue, Newark 5, N. J.

**Model 703**
**Sightmeter or Foot-Candle Meter**
The favorite for quick measurements in homes, offices, factories, schools, etc. Calibrated in seeing tasks (Sightmeter) and directly in foot-candles. Available with or without VISCOR® and cosine correction filters.

**Model 614 Foot-Candle Meter**
Ideal for commercial lighting surveys and general light measurements. Hinge mounted PHOTRONIC® Cell can be tilted to facilitate use. Measures all types of commercial lighting directly. Wide range of light values, with convenient range-changing switch.

**Model 756 Illumination Meter**
For light measurements requiring a high degree of accuracy over broad ranges. Ideal for research work and for checking other instruments. Corrected for color and Lambert's Cosine Law . . . long mirror scale and knife-edge pointer . . . convenient range-changing switch . . . in sturdy leather case with neck strap.

**WESTON** *Instruments*

*If you write maker identify as* IEN - 11728

## . . . AND HERE'S WHY

Falls, blows, oil, acids, sunlight and moisture little effect the life or performance of JOY electric plugs or receptacles. Molded as one-piece Neoprene units they can't crack or shatter and won't become "out-of-round". Before you buy, it will pay you to learn why these and other worthwhile features have made them an outstanding choice of American industry.

1. **Sturdy one-piece cable-connector assembly.**
2. **Safe, long lasting resilient Neoprene jacket.**
3. **Water-Seal prevents moisture infiltration.**
4. **Contacts firmly embedded in connector body.**

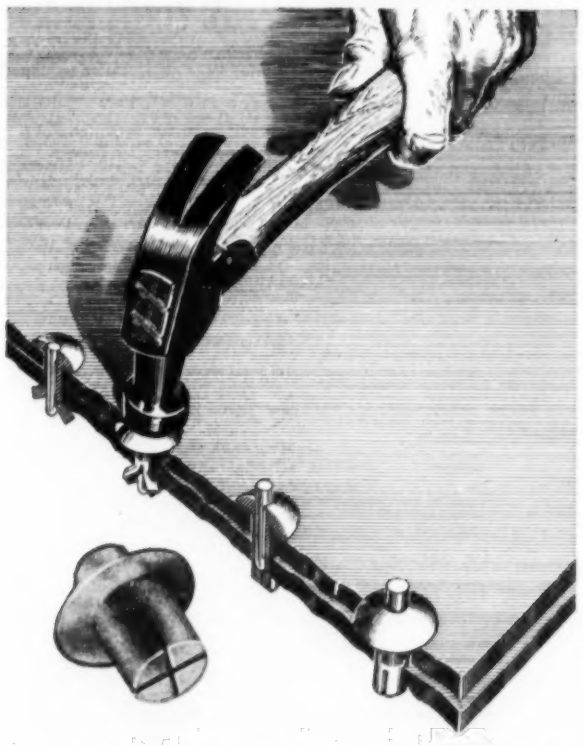
*Consult a JOY Engineer or write for your free copy of Bulletin MC108 on the JOY electric connector family today.*

OVER 100 YEARS OF ENGINEERING LEADERSHIP

**JOY MANUFACTURING COMPANY**
HENRY W. OLIVER BUILDING, PITTSBURGH 22, PENNSYLVANIA
IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GALT, ONTARIO

*If you write maker identify as* IEN - 11729

# WHAT IS A "BLIND" RIVET?



It is a type of fastener used to rivet together two or more pieces of material when access to the work is possible from only one side.

But SOUTHCO "Blind" Drive Rivets do much more than that. They provide maximum strength and reduce production costs. For installation you just hit the pin . . . and the rivet is in. At the same time, a powerful pull-up force is exerted to produce the kind of a tight joint you get when a **rivet is bucked from both sides.**

There is no finishing operation required with SOUTHCO Rivets, no wasted material, no noise, no special tools to buy or maintain. Fastening metal parts is as simple as driving a nail.

**FOR EITHER BLIND OR ACCESS APPLICATIONS**

Even when there is access to both sides, SOUTHCO Drive Rivets are specified because they make a one-man job of a two-man operation. They are so simple that costs are reduced through faster riveting.

**For the full story on SOUTHCO Drive Rivets, write to Southco Division, South Chester Corporation, 1407 Finance Building, Philadelphia 2, Penna.**

©1953
Pat. No. 2640618
Other Pats. Pend.
Rivet and Mfg.

**SOUTHCO FASTENERS**

**PAWL, SCREW AND SPRING • DRIVE RIVETS**
**ANCHOR NUTS • ENGINEERED SPECIALTIES**

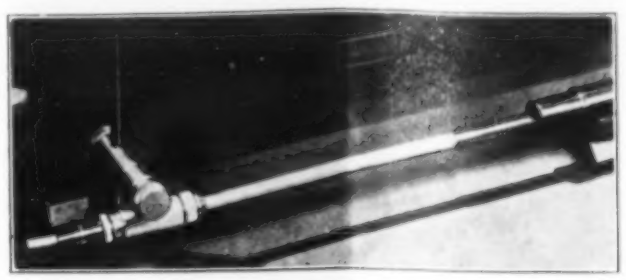
OFFICES IN PRINCIPAL CITIES

WHEREVER TWO OR MORE PARTS ARE FASTENED TOGETHER, STANDARD AND SPECIAL DESIGNS FOR IMPROVED PERFORMANCE AND LOWER PRODUCTION COSTS

*If you write maker identify as* IEN - 11731

## GAGE . . Profilometer tracer checks surface roughness in deep holes

**Source: MICROMETRICAL MFG. CO.**
**343-47 S. Main St., Ann Arbor, Mich.**



**Suited also to check flat surfaces**

**Type LE** is a new tracer to apply with the company's Profilometer gage to measure surface roughness in holes as small as ½ in. in side diameter, to 24 in. in depth and in a roughness range from 1 to 75 microinches. Each tracer is equipped with an integral arm with depth capacity of 9, 18 or 24 inches. Two types, known as Linkarm and Stiffarm, are designed for motor driven and manual operation. The motor driven design is recommended for hole diameters under ⅝ inch. List price ranges from $620 to $630.

*If you write maker identify as* IEN - 11732

## REFRIGERATING . . Portable equipment cools and circulates process liquid

**Source: CONRAD INCORPORATED**
**50-54 W. 4th St., Holland, Mich.**

**To minus 100 deg. F.**

**Motor driven compressors,** in the bottom compartment of this new portable liquid refrigerating equipment, serve as heat exchanger and motor driven centrifugal circulating pump in the upper compartment. Outlet and return to the pump are equipped with retractable connecting hoses for application in a circuit requiring temperature controlled chilled liquid. Flow control valves and capacity modulation control govern the cooling action. A thermostat is included as standard equipment.

**Capacity** ranges from 3,000 to 18,000 btu. to specification. Refrigerant compressors for low temperatures employ Freon 12, 13 or 22 in cascade action. They are water cooled or air cooled design depending upon the requirements. Overall dimensions of the caster mounted housings are 38 by 27 by 70 inches.

*If you write maker identify as* IEN - 11733

**Harwil Ventures,** 2744-48 W. 59th St., Chicago 29, Ill., offers a new service to process carbide blanks that are to be employed in metal cutting tools. At a price of $1 per ounce and on a minimum order of $5, the company applies the process to extend the life of the blank from two to ten time the expected life of a plain blank.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11734

**WITH *WATSON-STILLMAN***
**DOUBLE ACTING AIR ENGINE PUMP**

Connect this light efficient, portable unit to your low pressure air line. Result — Pressures for all types of Hydrostatic testing.

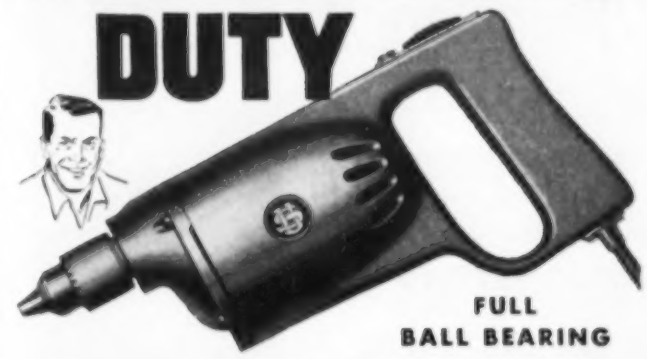
Can also be used for operation of small Hydraulic machinery and jacks. Available in discharge capacities up to 6000 p.s.i.

Write for literature.

**WATSON-STILLMAN FITTINGS DIVISION**
**H. K. PORTER COMPANY, INC.**
**141 Aldene Rd., Roselle, New Jersey**
9-0-15

*If you write maker identify as* IEN - 11735

# CONTINUOUS DUTY




## This ¼" drill — $28.00*

**MODEL 14AU** • Jacobs 3-jaw chuck with key • Rugged aluminum alloy frame • 100% ball bearing • Heat treated alloy steel gears • Capacity in steel ¼", in hardwood ½" • Cool operating under constant use.
Write today for name of Distributor and catalog No. US48.

**Price subject to change without notice.*

*United States Electrical Tool Division*
THE EMERSON ELECTRIC MFG. CO.
1050 Findlay St. Cincinnati 14, Ohio

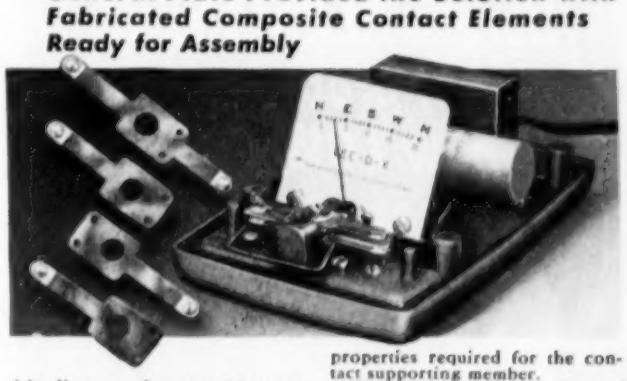
*If you write maker identify as* IEN - 11736

**PROBLEM:**

***Reduce Fabrication and Assembly Costs for Electrical Contact and Switch Blade Assemblies***

**SOLUTION:**

***General Plate Provided the Solution with Fabricated Composite Contact Elements Ready for Assembly***



A leading manufacturer of Antenna Rotators required contact and switch blade assemblies for a control switch that operated two synchronized circuits. To produce the assemblies by attaching a separate contact, rivet or button to the spring blades meant high fabrication and assembly costs and special machinery.

General Plate provided an economical solution with fabricated composite contact elements ready for assembly.

The complete contact and blade elements are made from a General Plate striped composite metal. The contact is a silver alloy which gives the necessary electrical performance. The blade is phosphor bronze which provides the spring properties required for the contact supporting member.

The result — initial savings of $7,000 in assembly costs alone by using General Plate fabricated composite contact elements.

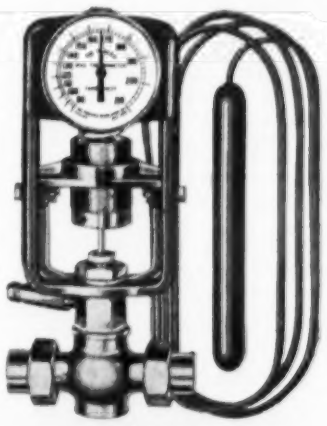
By letting General Plate fabricate your complete contact assemblies, you will save money, time and trouble . . . needless equipment cost . . . contacts and/or contact assemblies made to your exact specifications are shipped to you ready for installation.

If you fabricate your own parts, General Plate Composite Contact Materials will still save you money, too.

Write for complete information and Catalog PR700.

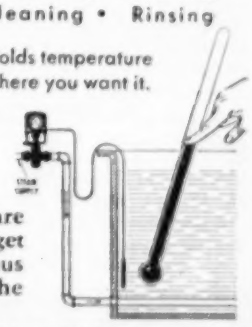
**METALS & CONTROLS CORPORATION**
**GENERAL PLATE DIVISION**
**710 FOREST ST., ATTLEBORO, MASS.**

*If you write maker identify as* IEN - 11737



**NEW**
**POWERS**
**REGULATOR**
For
Plating • Anodizing
Bonderizing • Pickling
Cleaning • Rinsing

Holds temperature where you want it.



**Saves LABOR and Steam**
**Helps Eliminate Costly Rejects**

Powers No. 11-MF Regulators are self-operating. They will help you get the most effective use from various solutions by holding them at the right temperature automatically.

**Plastic Covered Thermal Bulb and Tubing**—is highly resistant to solutions in above processes. Prevents electrical shorts. No insulators required for the regulator.

**Easy to Read 4" Dial Thermometer**—indicates temperature of liquid being controlled and makes it easy to adjust regulator for different temperatures.

**Bulletin 330** describes this simple, dependable control. May we send you a copy? (b31)

**THE POWERS REGULATOR CO., SKOKIE, ILL.**
Offices in over 50 Cities, see your Phone Book • Established in 1891

If you write maker identify as IEN - 11738

# Now! The VELOCITY-POWER DRIVER

*with permanently attached Spall-Shield ...faster...safer STUD SETTING*

Saves time, money, labor in electrical, heating, plumbing, air conditioning installations—both construction and maintenance. Sets studs in steel or concrete in seconds—just load, position, fire—job done. Integral cartridge eliminates matching and fitting, and interchangeable barrels permit driving of either ¼ or ⅜-in. studs with same firing unit. Solid head, internal or external threaded type studs available. Permanent spall-shield aids safety. Spring loaded safety arm and center-fire cartridges avoid accidental discharge, and assure right load for the job. Write for details.

◄ For close-to-the-wall jobs, section of spall-shield can be lifted, and turned out of the way.

Still available—model with separate spall-shield. ►

**VELOCITY POWER TOOL COMPANY**
201 North Braddock Avenue, Pittsburgh 8, Pa.

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If you write maker identify as IEN - 11739

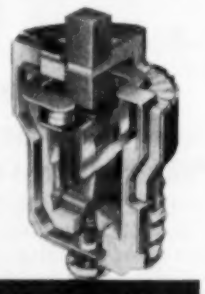
Modernize with

# MINI-BREAKER®

**. . . the amazing new Permanent Circuit Protector that fits like a fuse in standard Edison base fuse sockets!**

Time was when converting "one shot" fuse-protected circuits to a modern permanent type installation was a costly, complicated job. But not so today! Now anyone can do it in a matter of seconds simply by installing amazing new MINI-BREAKERS as *direct replacements* for expendable Edison base fuses . . . and right in existing fuse boxes, too! No additional equipment to buy, no special wiring required, no extra costs of any kind!

**NEW SAFETY! NEW CONVENIENCE!** MINI-BREAKERS give you positive, pre-tested protection against electrical fire hazards. They trip instantly on "shorts", but have a built-in time lag to handle temporary starting loads and line surges. 100% trip-free, too. Yet, as soon as the circuit is safe again, all you have to do to restore electrical service is press in and release the shock-proof reset button!



**LISTED BY U.L!** MINI-BREAKER is a precision-built, inspected "Circuit Protector" . . . the only device of its kind listed by Underwriters' Laboratories, Inc.! Available in 15, 20, and 30 ampere ratings, for A.C. service only, to 125 volt maximum.

**See your Electrical Wholesaler-Distributor or send for complete information today**

**MECHANICAL PRODUCTS, INC.**
1824 River Street • Jackson, Michigan

Please rush me full details on new MINI-BREAKER today!

NAME _____

ADDRESS _____

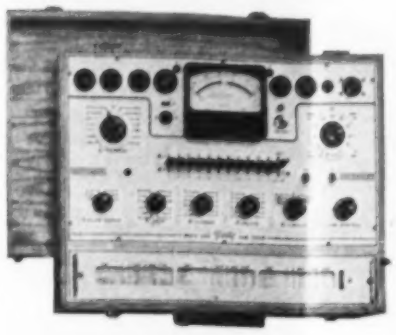
CITY _____ ZONE _____ STATE _____

---

If you write maker identify as IEN - 11741

## TESTING . . Electronic instrument designed to check electronic tubes

**Source: TRIPLETT ELECTRICAL INSTRUMENT CO.**
**11-15 Harmon Drive, Bluffton, Ohio**



**Simulates actual operation**

**Model 3423** is a new proportional mutual conductance testing instrument for industrial, laboratory and radio servicing. Tubes are tested by applying a high frequency signal to the grid and by measuring the signal component in the output by a special instrument circuit. A high tuned circuit which responds only to 4 kc. is used to extract the amplified signal in the plate circuit so hum, ripple and open grids cannot give false readings.

**Tubes** can be checked without overloading or other damage. The instrument includes a roll chart that provides instructions for a given tube. The assembly is in a wood housing covered with gray leatherette. Overall dimensions are about 15 by 19 by 6½ inches. The panel is etched.

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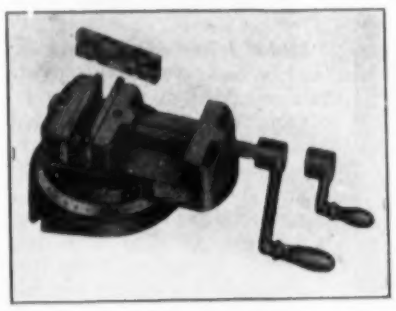
If you write maker identify as IEN - 11742

## VISE . . Swivel base design to position work on a machine table

**Source: KENCO MFG. CO.**
**5209-13 Telegraph Road, Los Angeles 22, Calif.**



**Holds work rigid**

**The body** of this new 6-in. precision vise is **secured to the** swivel base by three bolts directly beneath the work clamping location. The movable jaw is secured by means of a side plate and can be locked solid after the work is clamped. The vise opens to 4½ inches. It stands 4¾ in. in overall height and weighs 55 pounds. It is particularly suited to position work on a milling machine table.

**Three** hardened face jaw plates are supplied. One carries V-grooves for round work, both horizontal and vertical. The other two are for conventional types of work. Two handles, one short for fast travel and a larger one to lock the work, are standard equipment. The base is beveled at 45 deg. and graduated from 0 to 90 to 0 degrees. Markers are located right and left to give identical readings.

---

If you write maker identify as IEN - 11743

**Denison** Engineering Co., 1158-62 Dublin Road, Columbus 16, Ohio, has published a pocket folder that makes it easy to find the company in Columbus, on a center-spread map, and then to find who's who and where in the company itself. Ask for a copy of "Welcome to Denison . . ."

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

---

If you write maker identify as IEN - 11744

Revolving turntable allows the operator to work all around the casting without stop for re-positioning . . . an addition to the standard Wolverine rectangular benches — Provides: • Better dust collection due to higher velocity. • New design, permitting exhaust outdoors where required, or return to room if desired. • Standard velocity, 300 feet per minute, and, if application requires, higher velocities available up to 800 feet per minute. • Ideal system for collecting dust from grinding, polishing and sanding operations.

Heavy duty industrial viscous filters in rear compartment remove dust from air stream and axial flow fan in top of rear compartment discharges vertically back into the room or outdoors if required.

*Write for descriptive bulletin, Dept. D*

**WOLVERINE EQUIPMENT CO.**
31 MAIN ST., CAMBRIDGE 42, MASS.

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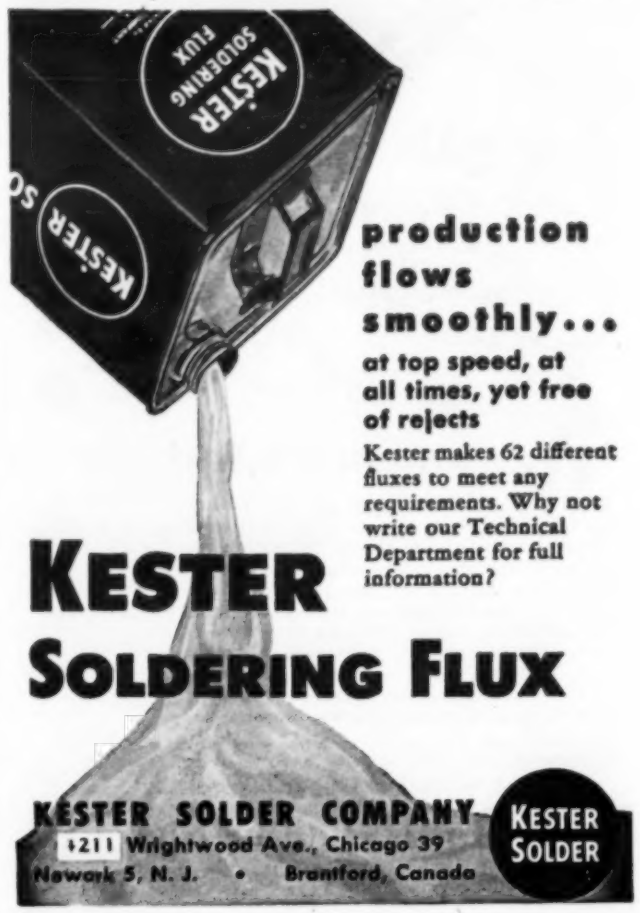
If you write maker identify as IEN - 11745




**production flows smoothly...**

**at top speed, at all times, yet free of rejects**

Kester makes 62 different fluxes to meet any requirements. Why not write our Technical Department for full information?

# KESTER SOLDERING FLUX

**KESTER SOLDER COMPANY**
4211 Wrightwood Ave., Chicago 39
Newark 5, N. J. • Brantford, Canada

KESTER SOLDER

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If you write maker identify as IEN - 11746

# Our Man IS YOUR MAN

The M & T representative is backed by a line of welding materials and equipment as complete as any available anywhere. In addition, he is a seasoned, practical welding engineer, well qualified to be of genuine help on your welding problems.

If the latest in welding techniques, equipment and materials can assist you, *our man is your man*—for orders or advice.

DETINNING • THERMIT WELDING • METALS and ALLOYS • ARC WELDING—Materials and Equipment CHEMICALS and ANODES for Electrotinning CERAMIC OPACIFIERS • STABILIZERS for Plastics TIN, ANTIMONY and ZIRCONIUM CHEMICALS

VISIT US At the METAL SHOW—Space 1908.

**METAL & THERMIT CORPORATION**
100 EAST 42ND STREET • NEW YORK 17, N. Y.

*Murex Electrodes • Arc Welders • Accessories*

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If you write maker identify as IEN - 11747

for Eye-Level Readings . . .

# AUTO-LITE

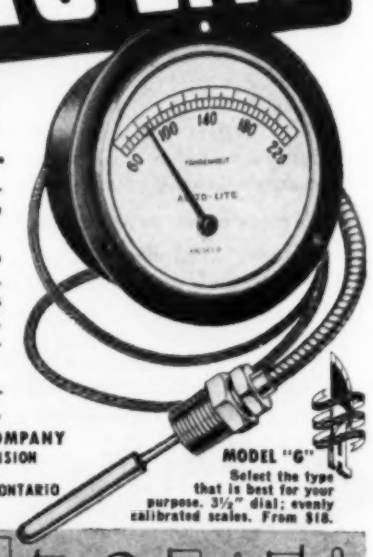
## TEMPERATURE INDICATORS...

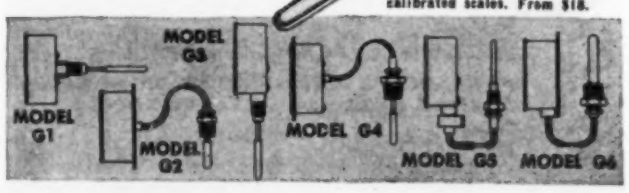
Precision-built indicators provide accurate temperature readings.

Low-cost protection . . . due to large, specialized production. Wide selection of dial ranges to meet specific requirements. Choice of stock types available as shown.

Send for new catalog, describing many thermometer styles.

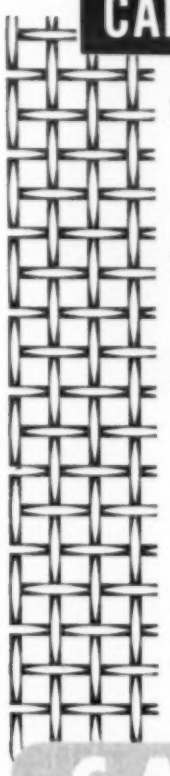
**THE ELECTRIC AUTO-LITE COMPANY**
INSTRUMENT AND GAUGE DIVISION
TOLEDO 1, OHIO
NEW YORK • CHICAGO • SARNIA, ONTARIO



If you write maker identify as IEN - 11748

# CAL-WIC WIRE CLOTH



**THE RIGHT WEAVE**

• • • for every industrial requirement including screening, filtering, grading, cleaning and numerous other types of processing.

**THE RIGHT WEIGHT**

• • • precision-fabricated for long-lasting dependability and economy.

**THE RIGHT METAL**

• • • for highest resistance to chemical action, moisture, corrosion, abrasion and extremes of temperature.

For additional information write or phone our nearest sales office.

EAST: Wickwire Spencer Steel Division, Clinton, Mass.
WEST: The Colorado Fuel and Iron Corporation, Denver, Colorado
PACIFIC COAST: Pacific Coast Division, Oakland, California

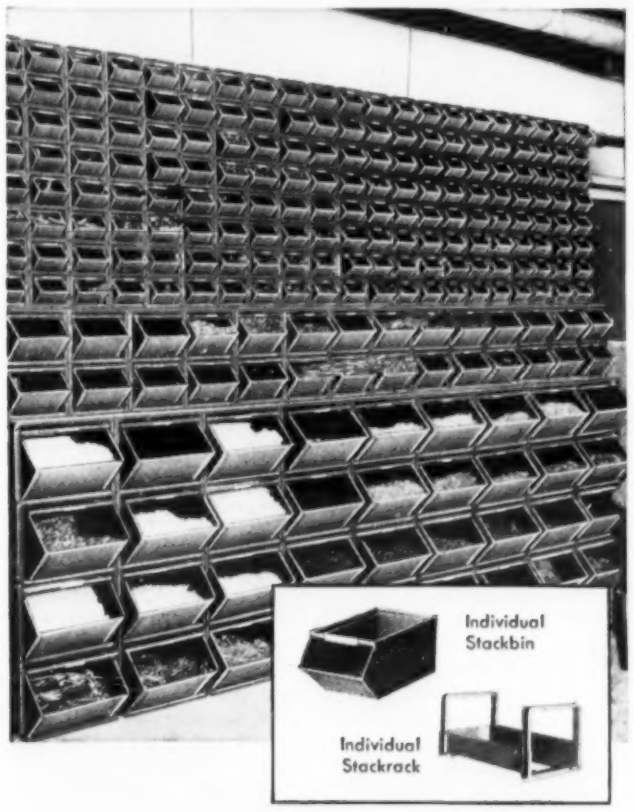
**CAL-WIC**
**INDUSTRIAL SCREENS**
THE COLORADO FUEL AND IRON CORPORATION

If you write maker identify as IEN - 11749

# Reduce Handling

*of tools, parts and materials for*

# Processing, Storage, Assembly




The combination of Stackbins®-in-Stackracks® reduces storage space, simplifies processing and speeds assembly. Tools, parts and materials stored in Stackbins can be moved wherever needed in their storage containers without handling. In Stackrack storage units, Stackbins slide like drawers—can be removed without disturbing other bins. Stackbins are individual, hopper-fronted Stacking bins. Stackracks are individual units which lock together without tools, to form storage racks of any size, shape or capacity.

**STACKBINS® IN STACKRACKS®**

Write for new catalog describing entire Stackbin System of materials handling aids. Stackbin Corp., 1077 Main St., Pawtucket R. I.

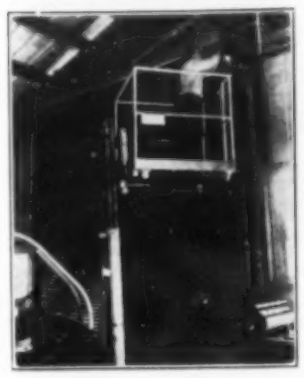
Manufactured and sold in Canada exclusively by Wickware-Stackbin, Ltd., Ottawa

**STACKBIN SYSTEM**
*"Stacked and Still Accessible"*

If you write maker identify as IEN - 11751

## ELEVATOR . . Safety platform rides truck forks for work overhead

Source: HAMERSLAG EQUIPMENT CO.
43-47 Elmira St., San Francisco 24, Calif.



Goes up on forks

New Hesco platform measures 42 by 42 inches. It is mounted on rigid and swivel casters so it can be rolled on the floor from one location to another. Brackets beneath the platform admit forks on a power lift truck so the platform can be lifted to carry workers up for overhead operations. The platform is equipped with a 42-in. guard rail and a hinged gate. The floor is faced with a 4-in. toe plate. Assembly includes a light weight tool box when this particular unit is specified.

If you write maker identify as IEN - 11752

## PROTECTING . . Oxygen mask and cylinders for emergency use

Source: CYCLO-FLO COMPANY
P. O. Box 228-A, Milford, Conn.

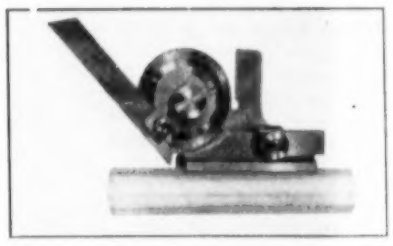
Can be recharged

Two cylinders, each containing sufficient oxygen for 5 min. of operation, feed the face mask in this new Pocketaire oxygen mask. The equipment weighs 4½ pounds. One cylinder provides oxygen for the initial 5-min. interval. The second cylinder can be opened, when the first one is exhausted, for an additional 5-min. "escape" interval. A gage on the manifold, to which the cylinders are secured, shows remaining pressure in first one cylinder and then the other.

If you write maker identify as IEN - 11753

## GAGE . . Bevel protractor, vernier scale reads to 5 minutes

Source: MERCURY SUPPLY CO.
408-12 Fairview, Elmhurst, Ill.



Sets to any angle

Stainless steel is employed in the construction of this new universal bevel protractor. The gage is featured by the vernier scale, the acute angle attachment which secures to the base line, the eccentric clamping and releasing mechanism and the new design of base which permits centering the unit on a circular surface as well as a flat one. The protractor is supplied in a wood carrying case with one 6-in. and one 12-in. blade.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

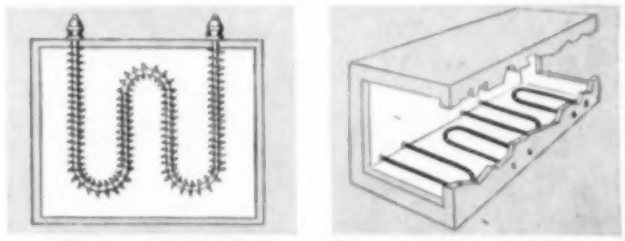
If you write maker identify as IEN - 11754

A PAID NEWS ADVERTISEMENT BY ARMSTRONG PRODUCTS CO.

## HIGH STRENGTH ADHESIVE suited to many hard-to-bond jobs

Bonding of aluminum to aluminum and joining of other hard-to-bond metals is possible with A-6 adhesive which requires only contact pressure for joining and cures at room temperature. It will also bond such other rigid materials as wood, plastics, glass and hard rubber to themselves and to each other. Curing takes from 1 to 36 hours, depending upon temperature applied. Shear tests often exceed 3000 psi at room temperature and 2500 psi at elevated temperatures. Adhesive does not shrink, swell or creep and is available in pints, quarts, gallons and 5 gallon quantities. Trial test kit, including activators, is $1.00 in U.S. or Canada. Made by Armstrong Products Co., P. O. Box 1-S, Warsaw, Ind.

If you write maker identify as IEN - 11755



# Heat process air accurately, uniformly with G-E Calrod* heaters

For process air heating—in curing, ripening, or drying rooms—specify long-life Calrod fin or tubular heaters to get:

**Uniformity**—thermostatic controls assure you of accurate temperatures.

**Adaptability**—heaters can be formed to almost any shape to match your job.

**Cleanliness**—no smoke or fumes contaminate air and endanger product quality.

For more information, see your G-E Apparatus Representative or Distributor. And write now for—

**FREE APPLICATION BULLETINS**

GEA-5096—"Heating Process Air with Electric Heat"
GEA-5685—"Calrod Heater Selector Guide"

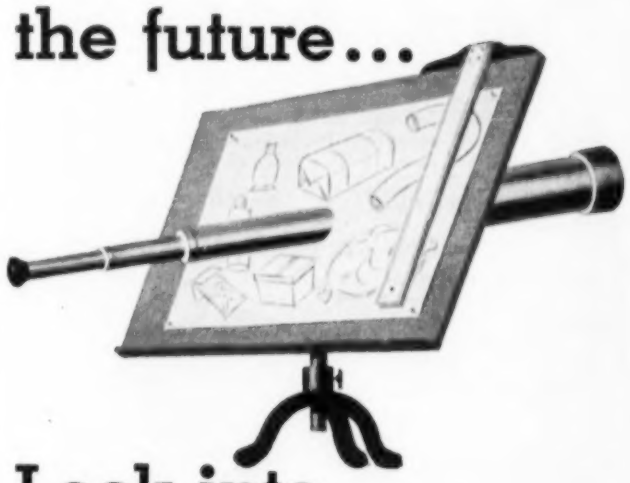
Sect. 720-111, General Electric Co., Schenectady 5, New York.

*Reg. Trade-mark of General Electric Co.

**GENERAL ELECTRIC**

If you write maker identify as IEN - 11756

# To focus on the future...



# Look into BAKELITE TRADE-MARK Polyethylene

**YOU'LL MAKE TOMORROW'S NEW PRODUCTS COME CLOSER**

THE THINGS this plastic can do . . . the many ways it can be used . . . will stir the imagination of designers and manufacturers like no other plastic before.

Products lingering on drawing boards, or in idea-pending files for want of the *right* material, may now be projected into wonderful new products that can dominate tomorrow's markets.

There's hardly an industry, or a product that cannot benefit in some new, exciting way from the remarkable combination of properties of this dynamic new plastic . . . whose uses and demand are growing by leaps and bounds.

Focus your sights on the future now. Let the power of BAKELITE *Polyethylene* expand your ways and means to make more, newer and better products. Though it has been in short supply, new plants are now under construction to expand production. Time your own development work so you will be ready to benefit in the future.

**START TODAY!** Write for the free new 24-page booklet, BAKELITE *Polyethylene* that will show how *you* can benefit. Write Dept. **SB-14.**

**BAKELITE** TRADE-MARK **Polyethylene**

**BAKELITE COMPANY**
*A Division of Union Carbide and Carbon Corporation*
30 East 42nd Street, New York 17, N. Y.

If you write maker identify as IEN - 11758

# IF YOU HAVE A DUST PROBLEM

## Send for this *FREE* Bulletin

Reverse Air Jet cleaning of filter tubes is the most important improvement in cloth dust filtering developed for industrial plants during the past 50 years. This Bulletin (No. 528) contains new information on dust control.

**The DAY Company**
813-3rd Avenue N.E. • Minneapolis 13, Minnesota
IN CANADA: P. O. Box 707, Ft. William, Ont.
Branch Plants: Buffalo, Ft. Worth, Welland, Ont.

DAY SINCE 1881 — DUST CONTROL
A SINGLE UNIT OR A COMPLETE SYSTEM

If you write maker identify as IEN - 11759

# *Strange Perhaps... But They Are Related!*

Masland Duran . . . "Folded-and-Formed" Heating Elements. What's the connection? Well, in the manufacture of Duran, the popular all-plastic material for fine upholstering, the process includes heating and curing in ovens equipped with Trent Patented

**"FOLDED-and-FORMED" Heating Elements**

This is another example of a *quality* product produced with the help of these *quality* heating elements . . . unequalled in efficiency, durability and economy.

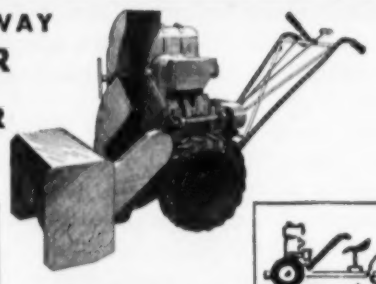
"Folded-and-Formed" Heating Elements are made in Standard and Custombuilt Racks to meet any installation or K. W. requirement. What is your heating problem?

TRENT INC.
Electrically Heated Industrial Equipment
247 LEVERINGTON AVE. PHILA. 27, PA.

If you write maker identify as IEN - 11760

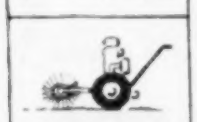
# MAXIM SNOW THROWERS

PAY THEIR WAY WINTER AND SUMMER



3-Gang 72" Mower

37" Rotary Mower



42" Rotary Brush

**WHY WAIT FOR SNOW TO FLY**

Now you can use a powerful 7.5 h.p. Maxim Snow Thrower all year long . . . in the winter for the most efficient snow removal you ever saw . . . in the summer for mowing, rolling, grading, hauling, or brushing. Conversion quick and easy.

900 Lb. Lawn Roller

42" Grader or Snow Blade

½ Ton Dump Trailer

WRITE FOR DETAILS

**THE MAXIM SILENCER COMPANY**
Dept. TW, 71 Homestead Ave., Hartford 1, Connecticut

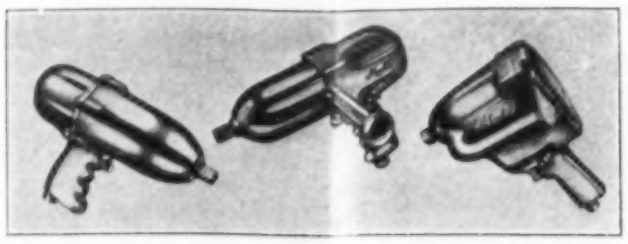
Name_____
Address_____

2MT53

If you write maker identify as IEN - 11761

## WRENCH . . Pneumatic impact tools for nuts, studs, lag screws to 7/8 in.

Source: MALL TOOL CO.
7725 S. Chicago Ave., Chicago 19, Ill.



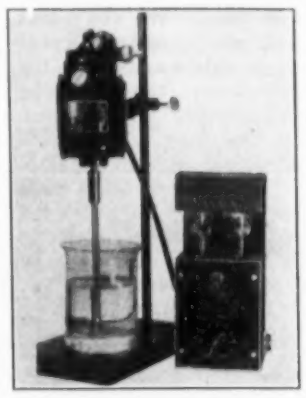
**Triplets**

**Vane type** rotary motors, with reversing control, drive the company's three new portable pneumatic wrenches at 1,400, 1,300 and 1,600 rpm. free speed on 90-lb. air pressure. The three rate to ½, ¾ and ⅞ inch. Each is fitted with a square drive spindle to take socket adapters. Weights are 6, 11 and 19¾ pounds. The three tools, from left to right in the illustration, are Model PW-308P, PW-4012P and PW-5014S.

If you write maker identify as IEN - 11762

## MIXING . . Laboratory equipment and electronic variable speed control

Source: GERALD K. HELLER COMPANY
1536 Ridgely St., Baltimore 30, Md.



**List is $90**

**Type GT-21** is a new combination of enclosed ball bearing dc. motor and variable speed electronic control for laboratory mixing operations. The motor mounts two drive shafts, one direct and the other at right angles through a geared head. Either can be used with the electronic control which connects to a 110-volt ac. power source.

**Motor torque** remains constant at any speed in a stepless range to 5,000 rpm. A reversing switch permits rotation in either direction. Equipment includes a mounting bracket to attach to a standard laboratory stand, two mixer shafts with couplings, one mounting a 1½-in. propeller and the other including a paste paddle, a three-jaw ⅜-in. chuck and mounting arbor, a three-step pulley to fit either motor shaft, and the required hollow head wrenches.

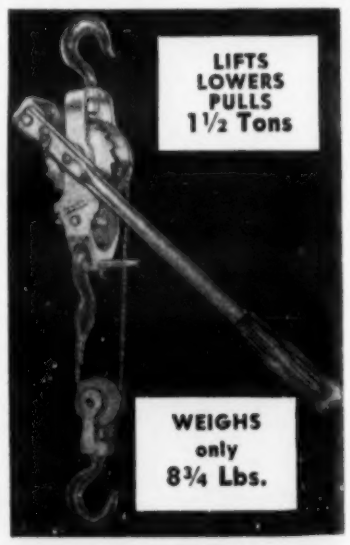
If you write maker identify as IEN - 11763

**Chromic acid** can be recovered from rinse water in a plating installation by new application of the ion-exchange equipment developed by Barnstead Still & Sterilizer Co., 104 Lanesville Terrace, Boston 31, Mass. The rinse water is passed through a cation column to remove aluminum and copper and then through an anion resin bed and regenerating process to recover the chromic acid. One charge of resins can be employed for 100 or more recovery cycles. The operation also produces a supply of demineralized water as a byproduct.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11764

# REDUCE MAINTENANCE COSTS ON THESE JOBS




★ Moving Machinery
★ Conveyor Belt Tightening
★ Hoisting Motors, Gears, Shafts
★ Changing Batteries
★ Opening Box Car Doors

The rugged little 1½ ton capacity LUG-ALL Winch-Hoist reduces your maintenance costs in these specific ways.

**DO THE JOB WITH FEWER MEN**

Weighing less than 10 pounds, the LUG-ALL enables one man to do jobs formerly requiring two men. LUG-ALL outpulls five (5) men with a rope block rig.

**YOU DO THE WORK FASTER**

Getting to the job and setting-up is faster, easier. The built-in pulley block with triple-hook system works in any direction.

**USERS "WELL SATISFIED"**

C. T. DuBruell of Akron Brass Mfg. Co., Wooster, Ohio, says, "Of all the labor saving devices I have purchased in past 18 years, our two LUG-ALLS have drawn the greatest praise from men in the shop".

COMPLETE WITH 10 FT. OF CABLE
ONLY
**$35.25** FOB Factory

**GUARANTEE**

Every LUG-ALL guaranteed one year against defects in workmanship and materials.

ORDER TODAY—Or request fact-packed Bulletin #116. It's yours for the asking.

**LUG-ALL ADVANTAGES**

Bearings are oiled-for-life. Alloy frame withstands 5 ton load. Flexible aircraft cable. Stainless steel springs. Safety handle prevents overload. Cable stores out of way on drum. Interlocking pawls *cannot* slip.

**THE LUG-ALL COMPANY**
WYNNEWOOD 3, PENNA.

If you write maker identify as IEN - 11765

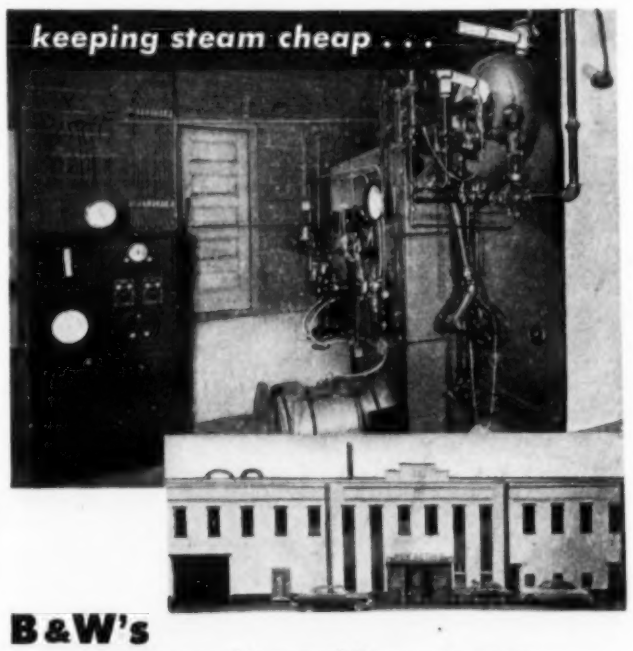
Here's an interesting and varied collection of fastener problems, which were solved by sound application of self-locking ELASTIC STOP nuts or the new Rollpin fastener. Some of these 28 cases may suggest answers to some design problems of yours. Or perhaps you'll just enjoy reading how other engineers resolved their difficulties.

Write for your free copy of this booklet of ideas. And if you have ideas or problems of your own, remember that ESNA has the broadest line of standard and special self-locking fasteners . . . and a staff of experienced engineers ready to help you. Address N39-1053.

**ELASTIC STOP NUT CORPORATION OF AMERICA**
2330 Vauxhall Road, Union, N. J.

DESIGN HEADQUARTERS FOR SELF-LOCKING FASTENERS

If you write maker identify as IEN - 11766




**B&W's FIRST** *Integral-Furnace Boiler, Type* **FM**

**SAVING 20% ON FUEL ALONE**

***at New Method Service***

This self-contained B&W oil-fired unit was installed in May, 1950, as part of a modernization program for the big New Method plant, which has been serving Staten Island residents for 31 years. The first B&W shop-assembled, Integral-Furnace Boiler, Type FM, to go into service, it has a steam capacity of 20,000 lb per hr at a pressure of 135 psi . . . supplies steam for both heat and processing requirements of the more than 5000 garments for dry cleaning and 4000 laundry bundles handled during the average week. The B&W unit, with automatic control, supplies steam at a constant pressure, raising considerably the overall plant operating efficiency. Cleanliness—essential in a laundry—is no longer a problem, due to the elimination of smoke and ash handling. Space saving, in and around the plant, is another plus-factor. Outside areas formerly occupied by coal and ash piles have been put to more practical use, and boiler-room space made available by the new unit provides a maintenance shop for the entire plant. Boiler-room men report only minor maintenance since the B&W unit was put into service. Summing it up, Mr. Louis Lawch, President of New Method recently remarked, "We're very happy with our investment, the boiler runs like a charm."

Additional B&W units of this type, now in service or on order, have a total steam capacity exceeding 6½ million lb per hr. This versatile B&W boiler is available in steam capacities ranging from 2900 to 28,000 lb per hr at pressures between 15 and 235 psi, suitable for a wide variety of industrial, utility, and other applications.

*Write for Bulletin G-76, for an illustrated, detailed description of the many other cost-saving features of this unique unit, The Babcock & Wilcox Company, Boiler Division, 161 E. 42nd St., New York 17, N. Y.*

BABCOCK & WILCOX

G-603

If you write maker identify as IEN - 11768

# NEW

*For Driving Threaded Inserts*

## TITAN BUSHING DRIVER

Unique design features of this new production tool provide automatic positioning of threaded inserts to the proper depth below the face of the casting. A ball bearing pressure plate prevents backing the insert out after driving. Standard Titan Bushing Drivers are equipped with ½" female square drive, to drive threaded inserts .010" below face of the casting. Manufactured in sizes for all threaded inserts commonly in use.

*Write for Details*

**TITAN TOOL CO.**
*Production Tools*
52 Main St., Fairview (Erie Co.), Pa.

If you write maker identify as IEN - 11769

# ANOTHER

important new AGA product. Next month, watch for the third field-proven AGA development to be introduced in as many months.

## NEW!

TWO STEP
## AGASTAT
Trademark
TIME DELAY RELAYS

NET-11 AGASTAT

Single units for applications requiring a sequence of time delay periods or an adjustable momentary impulse. Time delay range of from 0.1 seconds to 10 or more minutes, with a secondary delay period up to 15 seconds. Compact, lightweight pneumatically timed units, low in cost and remarkably versatile.

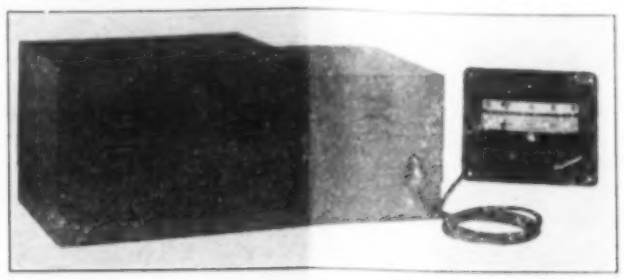
**Write for specifications**—and ask our application engineers for help with your timing problem. Address Dept. A5-102.

AGA DIVISION — ELASTIC STOP NUT CORPORATION OF AMERICA
1027 Newark Avenue, Elizabeth, New Jersey
*Pioneers in pneumatic timing*

If you write maker identify as IEN - 11771

## CONTROL . . Electronic equipment holds temperature at adjustable point

Source: WEST INSTRUMENT CORP.
515 N. Noble St., Chicago 22, Ill.



Bulletin JS

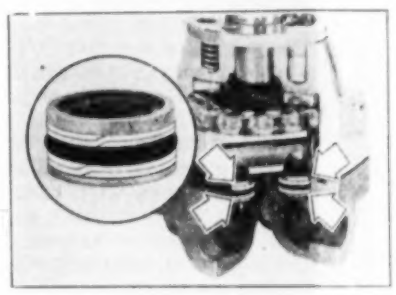
**Two sections** make up this new Model-JS stepless temperature control for electrically heated equipment. One contains the temperature indicator, parts of the control circuit and the control pilot lights. The other contains the heavier parts of the controller circuit. Connection between the two is by a six-conductor electric cable. The equipment is available to handle loads from 300 va. to 110 kva. Temperature is indicated on a 5-in. scale.

**Heating elements,** in equipment governed by the controller, operate at full power input for the initial temperature rise from a cold start. They are controlled from that point on to supply only enough heat to hold the predetermined temperature. Pilot lights follow the action by indicating when power is on and, by brightness, the amount being supplied.

If you write maker identify as IEN - 11772

## SEALING . . Spiral teflon packing to back up O-rings, prevents extrusion

Source: W. S. SHAMBAN & CO.
11615-19 W. Jefferson Blvd., Culver City, Calif.



Protects the O-ring

**Series SR** is a new line of spiral back-up rings made of teflon. The line includes 153 sizes ranging from 0.125 to 15.50 in. in inside diameter. Chamfered ends or square ends can be specified. The rings are packaged on shipping mandrels to hold their shape and to assist in assembly. The new ring protects an O-ring from fatigue failure. It decreases nibbling action, prevents spiral failure and permits the use of a spiral back-up and O-ring combinations at temperatures between minus 110 and plus 300 deg. F.

If you write maker identify as IEN - 11773

**Big steel** gate valve, made by Lunkenheimer Co., 653 Beekman St., Cincinnati 14, Ohio, was demonstrated recently in connection with electronic control. The actuating equipment was set up at a distant point to send coded signals by microwave. The valve obeyed these signals faithfully and immediately, as observers were able to see in a television setup between the two locations.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11774

# NEW ! BIGGER SELECTION !

**NOW . . .**
**30 different sizes and shapes up to 3" diameter in stock. Use these plastic cable clips for, safe, light weight, durable support of wiring, tubing, components.**

Write **WECKESSER COMPANY**
5257 N. Avondale Avenue • Chicago 30, Ill.

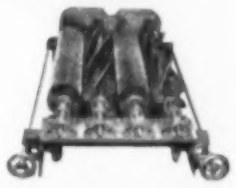
If you write maker identify as IEN - 11775

# TO THE INGENIOUS
Not familiar with this
# NEW INDUSTRIAL TOOL

**Free Sample of Fullergript Brush Strip**

**What problems can you solve by adapting Fullergript to your equipment?**

This brush strip can be coiled or twisted into numerous shapes. It can be formed to give intermittent or continuous brushing action. It adapts to stationary or power driven applications. How it may help *you* is a matter of your own ingenuity — plus the services of the Fuller Brush Engineering Dept. Find out what Fullergript can do by sending for a sample strip. We will also send a booklet showing its versatility. Simply write today.



The economy of continuous operation made possible by continuous scrubbing to remove hard baked deposits from steel conveyor in bake oven. Power driven unit applies action through two types of Fullergript brush strip.

INDUSTRIAL Fuller BRUSH CO. DIVISION
3583 MAIN STREET • HARTFORD 2, CONN.
Power driven brushes, Factory & Institutional cleaning tools, Waxes & Detergents

If you write maker identify as IEN - 11776

# Simplex-TIREX PORTABLE CORDS . . . via Graybar

**FREE BULLETIN gives complete size, stranding and application data**

Special "cured-in-lead" selenium neoprene armor gives Simplex-TIREX cords and cables distinct advantages over ordinary types: extreme flexibility without distortion . . . maximum resistance to abrasion and wear . . . uniform size for easy coiling . . . plus a satin-smooth finish that's highly resistant to water, oil, acid, sunlight and flame.

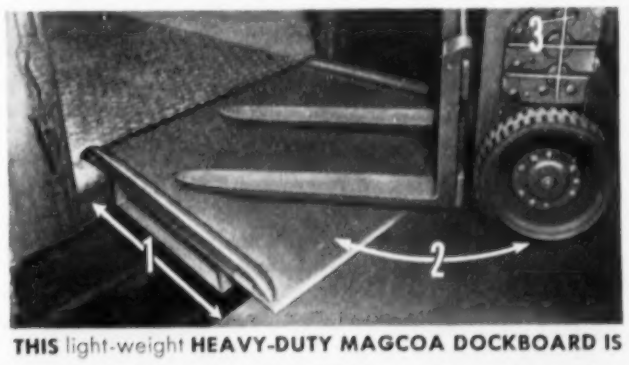
In addition, these Graybar-distributed cables and cords have markings molded right onto the jacket for positive identification as to number, size, and type of conductor being used.

Send, today, for this handy bulletin giving complete information on all Simplex-TIREX portable cable and cords . . . or, if you prefer, check directly with your local Graybar Representative. He'll be pleased to serve you in this as well as all of your other electrical needs. *Graybar Electric Co., Inc. Executive Offices: Graybar Building, 420 Lexington Ave., New York 17, N. Y.*

**Call Graybar *first* for . . .** Everything Electrical GraybaR ELECTRIC COMPANY

375-1210

If you write maker identify as IEN - 11777




THIS light-weight HEAVY-DUTY MAGCOA DOCKBOARD IS

## A BETTER INVESTMENT—*here's why*

**There are three reasons why** this is the perfect Dockboard for *this* installation. (1) It is the exact length required for *this* car-to-dock span, with proper allowance for car width variations. (2) The dock end of the board is flared just enough for use on *this* narrow dock, permits part of the turn to be made while the truck is on the board. (3) It is built for weight requirements of *this* company's handling equipment and loads, with a margin of safety to spare.

**Your dock is different** and your local Magcoa Representative knows it. He's a loading dock expert—thorough and quick in fitting a Magcoa Dockboard to your specific needs. Then mass-production specialists at the Magcoa factory take over. Result: a light-weight HEAVY-DUTY Dockboard that solves your specific problems, quickly . . . and permanently.

**Safety, Service, Facts**—Quarter-round safety curbs, one-piece hand holds and the other Magcoa safety and efficiency features make your Dockboard safe, permanent equipment. You get Magcoa Service, too, if abuse or misuse puts your Dockboard out of operation. Our free new **Facts File** gives you all the facts. It's yours for the asking.

**MAGNESIUM COMPANY OF AMERICA**
MATERIALS HANDLING DIV. • EAST CHICAGO 14, IND.

If you write maker identify as IEN - 11778

# A Better Strainer! —by DAVIS

## —with BOLTED CAP

*Bolted cap construction is used in sizes from 1½" to 12".*

If you think all strainers are alike, ASK THE MAN WHO HAS TO GET INTO THEM! Davis builds Strainers with bolted caps, (instead of threaded caps) because numerous engineers have asked for them. It's easier to remove bolts than to try to unscrew a large thread cap after a strainer has been in use. Also makes possible locating blow-off at lowest point; no sediment pocket. Don't confuse Davis precision-made strainers with ordinary pipe fittings. Available in wide choice of types for steam, air, gas, or fluids. Semi-steel, bronze, or steel bodies; screw or flanged. Pressures to 1500 p.s.i. Brass, stainless or monel strainer screen. Ask for bulletin 100-A.

**Davis**
DAVIS REGULATOR COMPANY

2529 South Washtenaw • Chicago 8, Illinois

If you write maker identify as IEN - 11779

# *Widest power range of any powder-actuated fastening tool*

# MODEL 450 REMINGTON STUD DRIVER

**Six different 32 caliber charges meet every fastening requirement**

Each of the six power loads for the Remington Stud Driver is designed to give the right power for the job — whether it's driving the stud into concrete or steel.

New, longer heel caps on all six cartridges mean a perfect gas seal ...assure arrow-straight driving. Bright colors indicate the right load instantly, no chance for error. You can select the *right* cartridge for each job...quickly and easily.

But exceptional power range is just one of the Remington Stud Driver's many advantages. This self-powered tool sets up to 5 fastening studs per minute...speeds construction jobs and cuts costs. Its light weight—only 5½ pounds—makes handling easy, even in confined places.

Test-proved to be the world's finest and speediest fastening system, the Model 450 Remington Stud Driver is made by the Remington Arms Company, Inc., *America's oldest sporting arms manufacturer.* Send in the coupon below for your free booklet describing the Stud Driver and its many uses.

*"If It's Remington—It's Right!"*

**Remington** DU PONT

**MAIL THIS COUPON TODAY**

Industrial Sales Division, Dept. IEN-10
Remington Arms Company, Inc.
939 Barnum Ave., Bridgeport 2, Connecticut

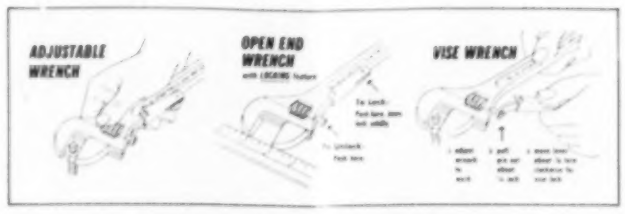
Please send me my *free* copy of the new booklet showing how I can cut my fastening costs.

*Name* .....
*Position* .....
*Firm* .....
*Address* .....
*City* ..... *State* .....

If you write maker identify as IEN - 11781

# WRENCH . . Adjustable open end can be locked to grip a bolt or nut

**Source: UTICA DROP FORGE & TOOL CORP.**
**2413-17 Whitesboro St., Utica 4, N. Y.**



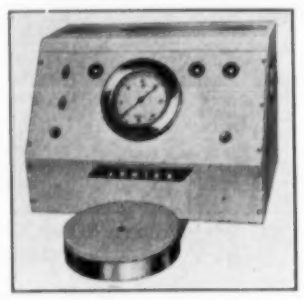

**Three sizes are 8, 10 and 12 inch**

**Number 92 Locking** wrench designates this new open end adjustable wrench. It differs from a standard open-end wrench in the handle gripping lever which engages a spindle carrying the jaw adjusting nut. The spindle can be pushed inward to release the nut so the wrench can be employed in the usual manner. The locking lever can be hinged away from the handle and the spindle pulled out about ¼ in. to engage the adjusting nut. Then the spindle is turned a short distance by means of the lever to lock the jaws tightly in holding position. The grip can be released by reversing the lever movement. The pin can be returned to normal by pressing it inward.

If you write maker identify as IEN - 11782

# TESTING . . Vacuum equipment to inspect metal products for leaks

**Source: WHITTINGTON PUMP & ENGINEERING CO.**
**1124-28 Prospect St., Indianapolis 3, Ind.**



**110 volt ac. input**

**A work piece,** that must be fluid or air tight, is positioned on the flexible pad at the front of this new Junior Detector and a test button is pressed. If the part does not leak, when suction is exerted through the hole in the center of the pad, a green light shows on the equipment housing and the vacuum being applied is read on the gage. If the work part leaks, a red light shows and the gage will also indicate leakage by movement of its pointer. The new unit represents further development of the larger production testing equipment, previously described IEN-2109-53. It can be set to indicate at a predetermined amount of vacuum within the 30-in. limit.

**Vacuum** is produced by a motor driven rotary pump enclosed in the housing which measures 18 by 12 by 12 inches. The test pad is 8 in. in diameter. The vacuum gage is chromium trimmed and measures 4½ in. in diameter.

If you write maker identify as IEN - 11783

**For $1** you can purchase a little plastic dispenser to take 792-inch rolls of cellophane tape to ½ inch in width. It has a toothed wheel that unrolls the tape and presses it into place as you draw it along a surface. It also has a knife blade that cuts the tape when you tilt the dispenser up on its nose. No sticky fingers, no tangled tape, no waste. Penn Tape Savers, D Street at Luzerne, Philadelphia 24, Pa. is the place to send your dollar for a Roll-A-Tape Model 1.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11784

# SIMPLIFY tough PULLING jobs

**Pull Rod or Screw Inserted through UNIQUE "CENTER HOLE"**
Ram is drawn in a straight, torque-free pull through Ram. Ram is its own back up! Less rigging time — more effective power!

**10 to 100 ton capacities.**

*"Center-Hole" in Rams of 30-ton and greater capacities.

**Simplex Re-Mo-Trol**

**HYDRAULIC PULLERS**
**PUMPS AND REMOTE CONTROLLED RAMS**

If it can be pulled, Re-Mo-Trol can pull it—easier and faster! Pulls liners, sleeves, shafts, gears, etc. SAFER remote control. Also lifts or presses. Can save its cost on a single tough job!

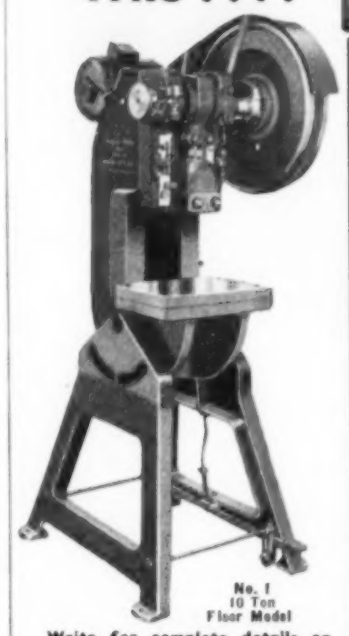
**WRITE FOR BULLETIN: HYDRAULIC 51**

Simplex Jacks

**TEMPLETON, KENLY & CO.**
2527 Gardner Road • Broadview, Illinois

If you write maker identify as IEN - 11785

# WILL THIS . . . .



No. 1
10 Ton
Floor Model

**Write for complete details on Sales Service's FREE Engineering Service.**

**PRESS-RITE**

## 10 TON POWER PRESS Handle YOUR JOB!

Standard Stroke .....2"
Slide djustment .....2"
Bed to Slide, Stroke down, Adjustment up 7½"
Distance to Back from Center of Slide ....5½"
Hole Diameter in Slide for Die Shank .....1 9/16"
Flywheel Speed .....160RPM
Floor Space required..23" x 36"

This 10 Ton PRESS-RITE Power Press is just one of many models ranging from 5 Ton to 85 Ton.

Our experienced engineers will be glad to give you their recommendation of the correct PRESS-RITE Press for your job—FREE. Send prints or specs. covering your maximum requirements TO-DAY.

*Sales Service Machine Tool Co.* SSMT
PRESS RITE PRESSES • SHAPE RITE SHAPERS • KELLER POWER HACK SAWS
2365 UNIVERSITY AVENUE, ST. PAUL W4, MINNESOTA

If you write maker identify as IEN - 11786

Typical, is this model train transformer application of Indicating Action. Real "sell action" here with the two Sterling meters providing informative interest and appealing movement.

How about your product — would an electrical or mechanical indicating device improve its eye appeal and buy appeal? Or perhaps you're dreaming of a new toy, gadget or atomic whatsit that needs an indicating instrument. Let's talk about it—perhaps we can help you, now.

## STERLING IDEAS
**SEE THEM NOW!**

This file folder is chock-full of information on Sterling meter models (A.C. and D.C. Panel, Resistance, Pocket in Ammeters, Voltmeters, etc.) plus examples of specially designed indicating meters for interesting applications. Send for your copy today.

**STERLING**
**MANUFACTURING COMPANY**
7201 Wentworth Ave.
CLEVELAND 2, OHIO

*If you write maker identify as* IEN - 11788

# LAWLOR MOP WRINGERS

FOR EASIER MOPPING GET A LAWLOR NO. 2

**EASIEST** turning wringer made: there are bearings at ends of rollers.

**EASY** to bring rolls together: foot lever is perfectly balanced.

Copied but never duplicated!

**EASY** to move wringer; self-adjusting front casters raise metal feet from floor when you're ready to go. The **LAWLOR No. 2** accommodates any standard round, galvanized pail up to 16-quart capacity. Net weight of wringer—23 pounds.

**LAWLOR No. 6 TWIN** is like the No. 2 Wringer in general construction, but accommodates two pails.

Write for Catalog of Mopping Tools, Wringers, Floor Scrub Wax-Polishing Machines for every kind and size floor.

**S. C. LAWLOR CO.**
120 North Aberdeen Street
Chicago 7 • Illinois

*If you write maker identify as* IEN - 11789

# NOW— IT'S OFF LIKE A STREAK!

NEW TIME-SAVING
**BLUE STREAK®**
RELEASE COATING

Exclusively on BRADY ★ Wire Markers
★ Special Markers ★ Pipe Markers
★ Safety Signs ★ Quik-Masks
★ Container Markers ★ Fluid Line Markers
★ Write-On Labels ★ Stencils

These Brady Products were always good . . . New BLUE STREAK Release Coating makes them *great!* Now *standard* on all Brady Products, BLUE STREAK permits instantaneous and *practically effortless* removal of Brady Markers and Masks from Brady Dispenser Cards.

It ends distortion that USED to result from twisting and tugging when trying to pull Markers off old-style Cards. You will cut your marking costs because BLUE STREAK reduces application time as much as 90%!

*See for yourself how BLUE STREAK will cut your marking, masking and labeling costs. Write today for FREE, useful literature and BLUE STREAK Demonstration Kit.*

WIRE MARKERS · PIPE MARKERS · SAFETY SIGNS · AISLE MARKERS · MASKS & STENCILS · PRINTED ROLL TAPES

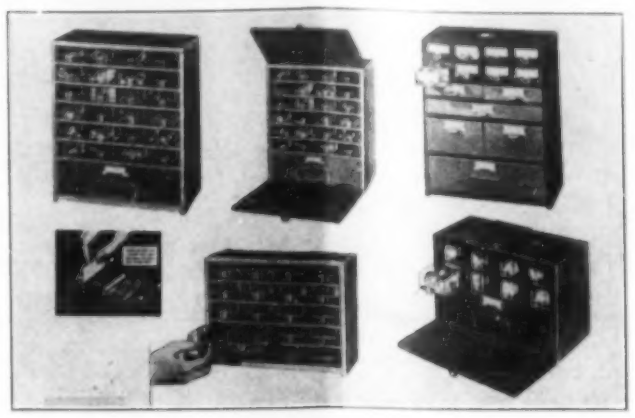
MANUFACTURERS OF SELF-STICKING PRODUCTS
**W. H. BRADY COMPANY**
789 W. Glendale Ave., Milwaukee 12, Wis.

*No. 1 name and No. 1 source for Self-Sticking Industrial Products.*

*If you write maker identify as* IEN - 11791

## STORING . . Transparent plastic and steel drawers in steel cabinets

Source: AKRO-MILS INCORPORATED
P. O. Box 989-A, Akron 9, Ohio



**Features visibility**

**Illustrated** are five assemblies in the company's recently expanded line of Haz-Bin, Jr. storage cabinets. The line includes 24 stock models and 300 combinations of custom built units. Frame size and drawer combinations will be supplied to specification at the same prices as for the stock models. Each assembly is complete and ready to use as received.

**Ten models** are equipped with 8 to 128 plastic drawers, previously described IEN-3423-53. Ten additional models combine plastic and steel drawers. Four models are in portable arrangement with hinged covers and carrying handles. List price ranges from $4.25 to about $58.

**Plastic drawers** measure 2¾ by 5⅞ by 1 7/16 inches. Steel drawers are in three sizes with capacity at two, four and eight times the capacity of the plastic design. The housings in all of the models measure 12½ or 25 in. in width, 6 in. in depth and 4 to 30½ in. in height.

*If you write maker identify as* IEN - 11792

## CORROSION PROOFING . . Kraft paper chemically treated for packaging use

Source: CROMWELL PAPER CO.
4803-31 S. Whipple St., Chicago 32, Ill.

**Conforms with Mil-P-3420**

**The company** announces recent improvement in its Ferro-Pak packaging paper previously described IEN-9317-50. The new material, like the original one, is available in basis weight between 30 and 100 pounds. It is coated on both sides with a volatile corrosion inhibiting chemical. This chemical is effective on protected parts located within 12 in. of the paper. The chemical action will arrest corrosion and prevent its spread. It will not protect against finger print corrosion where the finger prints have been placed on a metal surface prior to packaging.

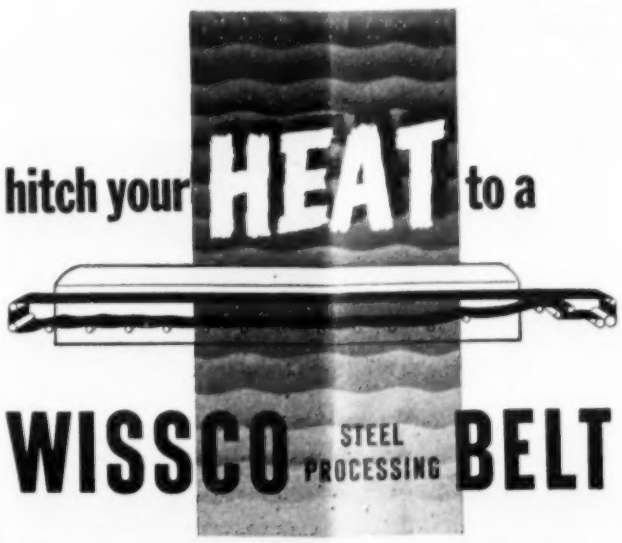
**The coating** evaporates slowly. It will not stick to the product or flake off and protection is maintained with the paper either wet or dry. The wrapped product is ready for use without need for cleaning as soon as the paper has been removed.

**Sheets** or rolls can be supplied, the former measuring 12 to 84 in. in width by 6 to 259 in. in length. The rolls range from 12 to 84 in. in width by 9 to 36 in. in roll diameter. Bags, pouches, shrouds can be ordered. The period in which protection will be maintained can extend into years.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11793

# hitch your HEAT to a WISSCO STEEL PROCESSING BELT



Turn your products out faster, more economically in continuous straight-line production with a Wissco Belt. To order, write or call our nearest sales office.

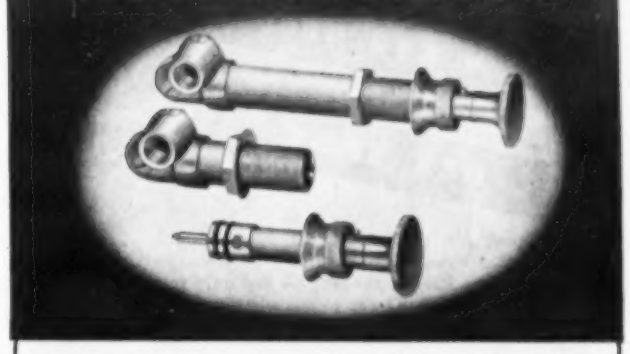
THE COLORADO FUEL AND IRON CORPORATION—Denver, Colorado
PACIFIC COAST DIVISION—Oakland, California
WICKWIRE SPENCER STEEL DIVISION—Atlanta, Boston, Buffalo, Chicago, Detroit, New Orleans, New York, Philadelphia

1430

**WISSCO BELTS**
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION CF&I

*If you write maker identify as* IEN - 11794

# KOHLER PRECISION CONTROLS



## Engine Primers for Industrial Applications

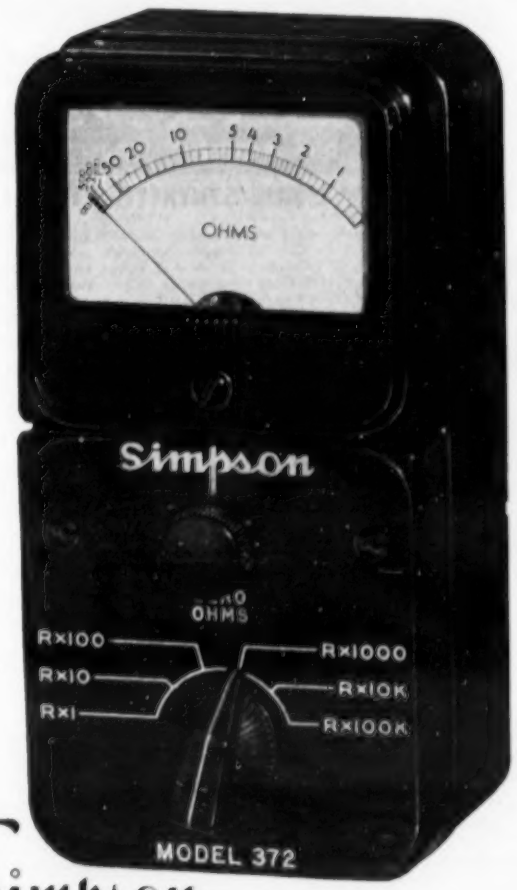
Kohler engine primers, available in two sizes, eliminate the usual causes of primer failure. They are used by leading Diesel engine manufacturers, builders of personal planes, by engine starting system fabricators and for other applications.

These light-weight aluminum primers operate with gasoline, oil or ethyl ether. Write for full information. Call on us for your next engine primer requirement.

Kohler Co., Kohler, Wisconsin. Established 1873

**KOHLER OF KOHLER**
PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
AIR-COOLED ENGINES • PRECISION CONTROLS

*If you write maker identify as* IEN - 11795




Simpson

## multi-purpose MICROTESTERS STAY ACCURATE!

These instruments are 3"x5⅞"x2½"—weigh 1¼ to 1½ lbs.—shipping weight, 3 lbs. Prices shown are dealer's net. Except where otherwise indicated test leads with prods or test leads with alligator clips and insulated sleeves are $1.25 extra.

| | | |
|---|---|---|
| AC AMMETER | Model 370 | Price $19.95 |
| AC VOLTMETER | Model 371 | Price $18.40 |
| OHMMETER | Model 372 with Test Leads | Price $25.50 |
| DC MILLIAMMETER | Model 373 | Price $19.95 |
| DC MICROAMMETER | Model 374 | Price $23.00 |
| DC AMMETER | Model 375 | Price $19.95 |
| AC VOLTMETER | Model 376 | Price $19.95 |
| DC VOLTMETER | Model 377 | Price $19.95 |
| AC MILLIAMMETER | Model 378 | Price $22.60 |
| BATTERY TESTER | Model 379 with Test Leads and Operator's Manual | Price $23.70 |

Burton browne advertising

**Simpson ELECTRIC COMPANY**
5200 West Kinzie Street, Chicago 44, Illinois
EStebrook 9-1121
IN CANADA: Bach-Simpson, Ltd., London, Ontario

If you write maker identify as IEN - 11797

# IMPROVED TURNBUCKLES

have

**NEW EYE DESIGN**

**HEX ENDS**

Laughlin's exclusive pear shaped turnbuckle eyes were designed to eliminate need for special shapes. It's the only eye that will take the ear of a shackle one size smaller than the turnbuckle. The shape makes it stronger than a round eye. It looks better and works better. The next time you need turnbuckles order Laughlin and see for yourself.

All Laughlin turnbuckles have hexagon ends and rugged reins. Easily adjusted with a wrench. Wheelabrated finish dipped in a rust preventive or hot dip galvanized.

*The Full Line of Wire Rope & Chain Fittings*

**LAUGHLIN**

THE THOMAS LAUGHLIN CO.
81 Fore St., Portland, Me.

If you write maker identify as IEN - 11798

**LIFTS DIRT FROM FLOORS... HOLDS IT OFF...**

# CINDET

100% ACTIVE 100% SAFE!

**NEW LIQUID SYNTHETIC DETERGENT**

Whether your water supply is HARD or SOFT, cleaning with CINDET means *no curds, no dingy film!* CINDET is *surface-active* — it works on the principle of LIFTING floor dirt, grease and old water-emulsion wax from floors and HOLDING it in suspension in a fluffy mass of energetically-cleaning SUDS. *Dirt is not re-deposited* — rinses off easily.

Dilute a little CINDET in HARD or SOFT water . . . apply with clean mop . . . let foamy, clean-looking suds stand 5 or 10 minutes . . . scrub only if necessary, and rinse thoroughly. The result: AMAZINGLY BRIGHT, CLEAN FLOORING.

Safe for *all* flooring — and wonderful for removing stubborn rubber marks. Also excellent for walls, for shampooing rugs and upholstery, for washing dishes by hand.

DOLGE backs up CINDET with a complete-satisfaction-or-deal-is-off GUARANTEE! Write for literature; have your DOLGE SERVICE MAN demonstrate CINDET *on your dirtiest, greasiest flooring.*

THE SUDS DO THE WORK!

FOR FREE SANITARY SURVEY OF YOUR PREMISES SEE YOUR DOLGE SERVICE MAN

*expendable* **DOLGE**

WESTPORT, CONNECTICUT

If you write maker identify as IEN - 11799

**THIS *Free* SAMPLE KIT**

CMD ANTI-SCORING LUBRICANT

Will show you how to:

- **Increase your production**
- **Prevent scoring and seizing**
- **Protect bearing surfaces better**

Here is a free sample kit of CMD Anti-Scoring Lubricants, designed for *your* use on *your* machines so that you can see how it will help increase production by preventing costly shutdowns. Also CMD lubricants positively prevent seizing, galling, scoring and are non-corrosive. Any bearing surface is absolutely protected with CMD. Send for your free kit and use CMD on lathe centers, steady rests, cams, taps and in many other applications where positive lubrication is demanded under high pressures. Do it today and see if you don't think CMD is tops!

**Use it for**

LATHE CENTERS
DIE SET POSTS
MACHINE WAYS
THRUST BEARINGS
CAMS—DIES—TAPS
GRINDING CENTERS
MILLING MACHINES

**FREE SAMPLE KIT**

Please send, under no obligation to me, free Sample kit No. 31U containing CMD Lubricants.

Name _____
Company Name _____
Address _____
City _____ State _____

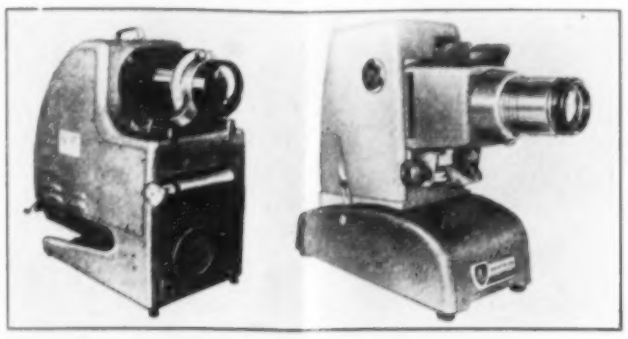
Chicago Manufacturing and Distributing Company
1904 West 46th St., Chicago 9, Illinois

CHICAGO MANUFACTURING & DISTRIBUTING CO.

If you write maker identify as IEN - 11800

## PROJECTING . . Two designs for opaque sheets, slides, filmstrips

Source: AMERICAN OPTICAL CO.
78-82 Heard St., Chelsea 50, Mass.



**Cooled for continuous operation**

**Opaque 1000,** to the left in the illustration, is a new projector with a copy aperture measuring 10 by 10 in., a 1,000-watt lamp and a 22-in. coated lens. A motor driven fan keeps cool the projected sheet and the platen on which it rests.

**The housing** is positioned to match screen height by adjusting spring loaded elevating legs. The platen is self-locking. Sharp focus is obtained by operating a rack and pinion. Accessories include an Optical Pointer to project a dot of light on any location on the image, a roll feed so the platen need not be raised and lowered, a carrying case with three handles.

**Educator 500,** to the right, is a new 500-watt unit for slides and filmstrip. It is available with a 3½, 5 or 7-in. Americote lens. Change is made between slides and filmstrip by inserting or removing a slide changer or the filmstrip unit. Slides are inserted on one side and ejected on the other. An elevating lever is operated to adjust the picture on a screen. The projector front rotates through 360 deg. to "right" horizontal and vertical frames. A motor driven fan cools the lamp house, condenser and both sides of a film. A heat filter protects the slides.

If you write maker identify as IEN - 11801

## TRUCK . . Two wheel hand design for drums is mounted on floating axle

Source: BOND FOUNDRY & MACHINE CO.
304 S. Penn St., Manheim, Pa.

**Self-loading**

**The frame** of this new tubular steel hand truck is pivoted on a pair of brackets to carry the axle in hinging arrangement. It enables a single operator to engage, pick up and transport a filled 55-gal. steel drum. The truck is brought into position vertically until its forks are at the base of the drum. Then it is tilted forward and its spring-backed chime hook is engaged. The operator places his foot on a bar at the rear and pulls back to slide the forks under the drum and tilt it to carrying position.

**Dimensions** are 24 by 60 inches. The wheels measure 10 by 2½ in. and are fitted with vulcanized rubber treads or in semi-steel design. Weight is 85 pounds. List, with rubber tires, is $77. It is $70 with semi-steel wheels.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11802

# CUT... OPERATING — MAINTENANCE — SPOILAGE COSTS!

## ON YOUR TAPPING JOBS!

NEW "TRU-GRIP" TAP HOLDER

Procunier Tappers are the last word in economical, efficient, high speed tapping. Only Procunier has the unique construction features that permit inexperienced operators to tap like experts. Procunier Tappers provide many extra hours of continuous accurate tapping without frequent "down-time" interruptions. Procunier Tappers are producing more—with fewer rejections, fewer spoiled pieces and a minimum of broken taps.

Only Procunier provides: new sensitive double cone friction clutch; soft cushioned action driving pressure; ballbearing equipped; heat treated gears; special balanced gear reversing mechanism; smaller-lighter more accurate tru-grip tap holder; and many others.

**Write for FREE Brochure**

Giving full particulars on the complete line of Procunier Tapping Machines. Learn how you can adapt them to your specific needs.

**Procunier**
**Safety Chuck Company**
18-16 S. Clinton St., Chicago 6, Ill.

PROCUNIER SAFETY CHUCK CO.
18-16 S. Clinton St., Chicago 6, Ill.
Dept. 10

Gentlemen: Please send your illustrated brochure giving complete details, specifications and prices on the improved line of Procunier High Speed Tapping Heads.

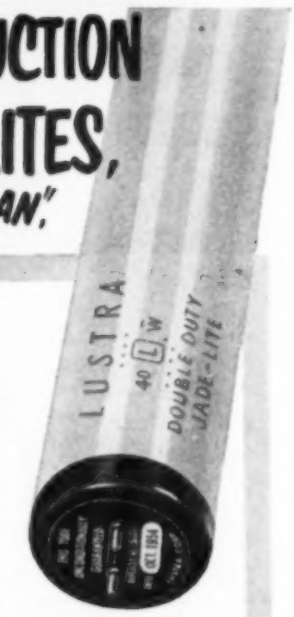
Name .....
Address .....
City ..... Zone ..... State .....

If you write maker identify as IEN - 11803

# "FASTER PRODUCTION WITH JADE-LITES,

*thanks to the* ***LUSTRA MAN,"***

[ *says The Philadelphia Thermometer Co.* ]




Mr. L. W. Scanlan, General Mgr., reports: "Ordinary fluorescents in our production department caused annoying glare. Our local Lustra Man suggested Lustra Jade-Lite Fluorescents which eliminated both glare and eyestrain and speeded production importantly."

Your local Lustra Man can solve your lighting problems, too . . . and save you money at the same time. Write for literature giving the whole Lustra story. **Lustra Corporation, Dept. P-10, 36 Washington St., Brooklyn 1, N. Y.**

**Lustra**
AMERICA'S DATED LAMPS

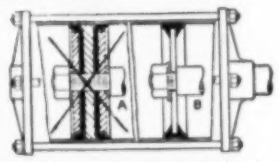
DOUBLE DUTY REFLECTOR LAMPS, INCANDESCENT LAMPS, FLUORESCENT TUBES, SPOTLITES AND FLOODLITES, RUGGED DUTY LAMPS, FLUORESCENT FIXTURES AND STARTERS

If you write maker identify as IEN - 11804

# *Double Acting One-Piece PISTON*

## HERE'S REAL SIMPLIFICATION

PATENTED




A complete one piece, Double Acting PISTON — so skillfully designed that 1 part (B) actually replaces 5 to as high as 7 parts, ordinarily used in conventional assembly (A).

This radically new ALLIS Rubber Piston is a unit piston plate and packing. Cup Members are constructed of highly resistant synthetic rubber, molded integrally to a solid metal plate. Time Tested and Proven—Highly Efficient with constant Lip Sealing action. Cannot be installed incorrectly.
Available in all standard cylinder sizes,—for Hydraulic and Pneumatic mediums such as oil, water, air, etc. Now being used by machinery manufacturers as standard or original equipment. Write for details today.

We produce MOLDED MECHANICAL RUBBER PRODUCTS . . . Bellows, Boots, Packing, Seals, Diaphragms, Dampeners, etc. Each part is Laboratory Controlled and Formulated to meet your operational requirements.

*Write today for our illustrated booklet — 32 pages of vital information.*

**ALLIS RUBBER CORPORATION**
Tel.: MOnroe 6-5050 • 123 N. Green Street, Chicago 7, Ill.

If you write maker identify as IEN - 11805

*SNOW is no problem with a* **jari, jr.** ROTARY SNOW PLOW

Cut snow removal expense this winter with the fast, efficient Jari Jr. Rotary Snow Plow. Jari Jr. handles up to 18 tons of snow an hour—does the work of six men with hand shovels. It's self-propelled, easy to handle . . . opens up walks, driveways, ramps, platforms in minutes!

**SPECIFICATIONS:** Self-propelled, 2-wheel drive. Easy-starting Briggs and Stratton engine, independent clutch. Rotary rake breaks up packed snow; open front for slushy conditions. Adjustable casting chute. Weighs only 129 lbs.

**ATTACHMENTS:** 28" power scythe for brush, weeds, tall grass. 20" reel-type, 5-blade mower for lawns and terraces.

*AT YOUR DEALER — OR WRITE FOR DETAILS AND PRICES*

**jari PRODUCTS, INC.**
2938-J Pillsbury Avenue, Minneapolis 8, Minn.

If you write maker identify as IEN - 11806

## Pressure Blast Application #24

Before Pressure Blasting — After Pressure Blasting

While this casting could be cleaned rapidly enough by conventional dry sand blasting, distortion and etching took place which interfered with subsequent machining operations. Pressure Blasting did this job in 1 minute and 10 seconds with no evidence of clod-working, metal-removal or etching reported.

MODEL A . . . ONE OF 4 STANDARD UNITS. CUSTOM MACHINES DESIGNED TO FIT SPECIAL REQUIREMENTS.

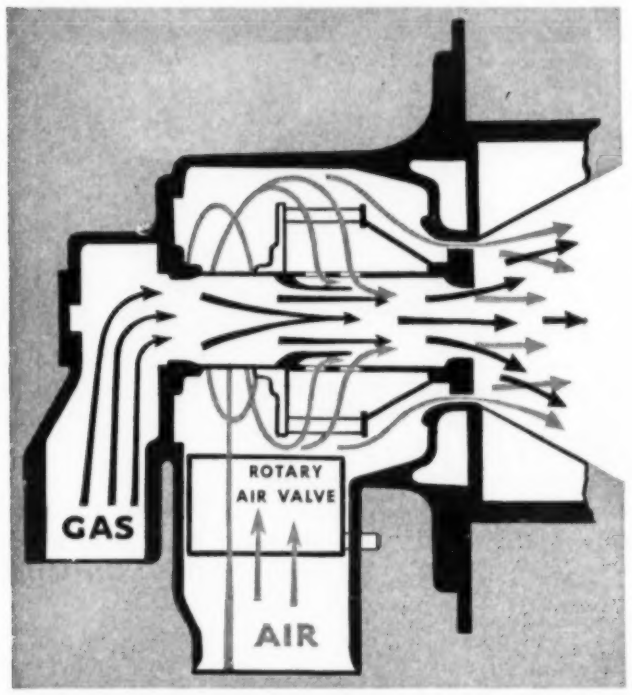
**ONLY PRESSURE BLAST GIVES YOU 2-SPEED WET-BLASTING**

FREE . . . Learn what PRESSURE BLAST can do for you! Die and Mold Polishing, Blending Grind Lines, Deburring, Heat Treat Scale Removal, Honing of Cutting Tools, Pre-plating Cleaning . . . Hundreds of proven, money-saving applications!

Write for our new 8 page fully illustrated Booklet . . . or send samples of work you want tested to:

The CRO-PLATE Company, Incorporated
747-3 Windsor Street
Hartford 5, Conn.

If you write maker identify as IEN - 11807




## VORIFLOW® gas burner

*. . . another cost-saving feature of*

## Powermaster®

**PACKAGED AUTOMATIC BOILERS**

- Keeps fuel cost DOWN and boiler efficiency UP.
- Infinitely variable combustion modulation responds instantly to load demands from 30% to 100% of firing capacity—*with full efficiency!*
- Immediate change-over to alternate fuels is provided with combination units.

**NEW BULLETIN . . .**

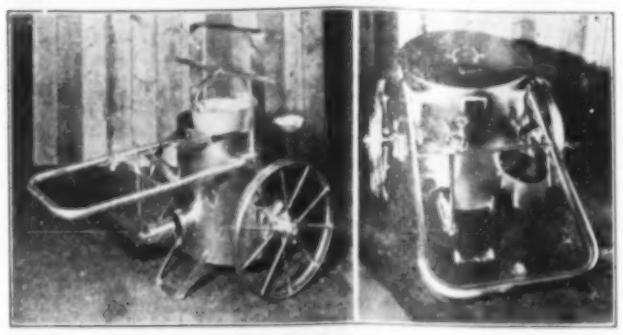
describes and illustrates *all* cost-saving features of the Powermaster. Send for a copy of Bulletin 1219 today.

**ORR & SEMBOWER, INC.**
860 Morgantown Road, Reading, Penna.
BUILDERS OF COST-SAVING BOILERS SINCE 1885

If you write maker identify as IEN - 11809

## MELTING . . Wheel mounted furnaces for lead and for sewer pipe compounds

**Source: AEROIL PRODUCTS CO.**
**67-71 Wesley St., South Hackensack, N. J.**



**Bulletin 232RO**

**Illustrated** are two new designs in the company's lines of oil and gas fired portable melting equipment. The unit to the left is a wheel mounted furnace for lead to be melted and applied in pipe line joints. It is available in capacities of 200, 450 and 850 pounds. Melting time from a cold start is 8 to 35 minutes.

**To the right** is a new furnace to melt compounds such as Leadite, Hydro-Tite, G-K Sewer Seal, mineral lead, gas main and water pipe coating enamels, asphalt, tar, pitch. Three capacities are 15, 25, and 50 gallons. Both furnaces can be rolled easily from one location to another over rough ground.

If you write maker identify as IEN - 11810

## PAINTING . . High heat aluminum for exterior metal, 400 to 1,000 deg. F.

**Source: TROPICAL PAINT & OIL CO.**
**1244-48 W. 70th St., Cleveland 2, Ohio**

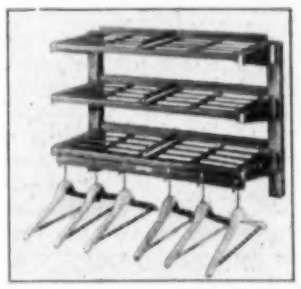
**For one coat application**

**Silicone** is employed in the new "exterior" variety of the company's Thermalite aluminum paint, initially developed for interior use on metal surfaces subject to temperatures between 400 and 1,000 deg. F. The new material will not discolor, flake or burn off. It will protect against weathering and attack by chemical fumes.

If you write maker identify as IEN - 11811

## STORING . . Wardrobe rack takes three coat hangers per foot

**Source: VOGEL PETERSON CO.**
**1119-23 W. 37th St., Chicago 9, Ill.**



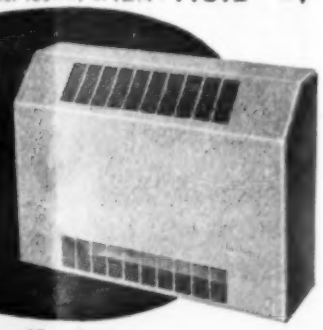
**Brown, gray, green**

**New rack** attaches to a wall by its two brackets. It provides space for three coat hangers per foot of length and space for hats on the three shelves. Each two-foot rack is shipped as a package for assembly on the job. Construction is in welded steel furniture tube. The shelves are perforated and embossed. Finish is in baked enamel.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11812

## NEW Dunham VARI-TEMP CABINET



### Gives Room-Controlled Heating, Cooling, Ventilating

Here's year 'round air conditioned comfort . . . at moderate cost. New, compact Dunham "Vari-Temp" Cabinets with twin blower fans heat, cool, ventilate, filter and dehumidify air . . . *all on an individually room-controlled basis.*

Simple and economical to install on floors, walls, and ceilings. No central system duct work needed. A single riser, connected to the unit, supplies hot water for heating; chilled water for cooling. Units are also available for heating with steam coil, or heating and ventilating with non-freeze steam coil.

One "Vari-Temp" delivers same amount of heat as *five radiators* its size. Three sizes available.

For full information WRITE FOR BULLETIN IEN-10.

**DUNHAM** HEATING SYSTEMS AND EQUIPMENT
*QUALITY FIRST FOR FIFTY YEARS*
C. A. DUNHAM COMPANY, 400 W. Madison St., Chicago 6, Illinois

If you write maker identify as IEN - 11813

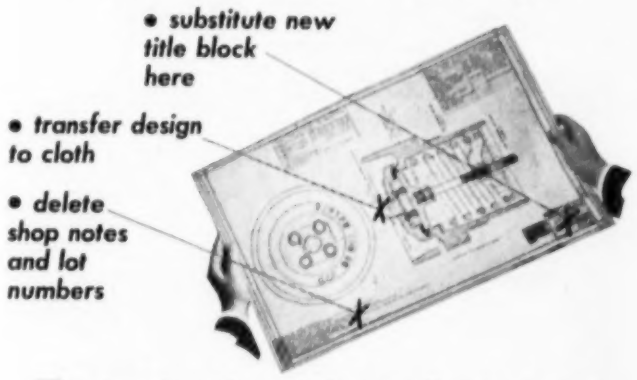
## MERRILL MATERIALS HANDLING DEVICES

3-M-2

**MERRILL BROTHERS**
56-14 ARNOLD AVENUE MASPETH, N. Y.

If you write maker identify as IEN - 11814

## All these changes made without one line of retracing




The American Car and Foundry Company, at its Milton, Pa., plant, has to modify hundreds of drawings like the one shown above to meet Army Transportation Corps requirements. Retracing would be much too slow . . . much too expensive. But how else can the job be done? *Kodagraph Autopositive Materials are the welcome answer!*

**First** – a positive photographic intermediate is made without a negative step by reproducing the original paper drawing on Kodagraph Autopositive Paper. A *fast room-light operation consisting of exposure in a standard print-making machine . . . and processing in standard photographic solutions.* The A.C.F. title block and shop notes are "scissored out" of this print . . . only the essential design remains.

**Next** . . . the Autopositive cutout of the design area is positioned under a Kodagraph Autopositive Film print, which is a reusable master containing only the Army Transportation Corps title block. Then this composite is reproduced on a sheet of Kodagraph Autopositive Cloth – the same simple operation as was used previously for processing Kodagraph Autopositive Paper and Film.

**Result:** a sparkling, extra-durable reproduction comparable to an ink-on-cloth tracing. And the job done – not on the drafting board – but almost entirely in the print-making machine.

**Write today** for a free booklet giving complete details on the revolutionary line of Kodagraph Materials, which you, or your local blueprinter, can process conveniently, economically.

**Kodagraph Reproduction Materials**

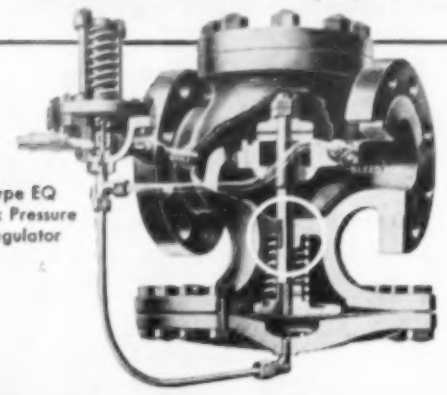
**"THE BIG NEW PLUS" in Engineering Drawing Reproduction**

**EASTMAN KODAK COMPANY**
**Industrial Photographic Division**
**Rochester 4, N. Y.**

Kodak

If you write maker identify as IEN - 11816

*another* SPENCE' *design feature*



Type EQ Back Pressure Regulator

## No Stuffing Boxes..

In Spence regulators all main valves and most pilots are built without stuffing boxes. This packless construction is made possible by the use of a large balanced metal diaphragm which eliminates the need for closely fitted parts. Result? More accurate regulation. • Valve stem wear is also reduced in the Spence packless design. Result? Low maintenance, years of trouble-free service • Write for Bulletin 500 giving full details of complete Spence line of automatic regulating valves.

SE-125

**SPENCE ENGINEERING COMPANY, INC.**
WALDEN, NEW YORK

If you write maker identify as IEN - 11817

## Now a NEW "Pencil Point" SOLDERING TOOL

FOR SMALL OR MINIATURE WORK

IDEAL

## Thermo-Tip

*INSTANT HEAT—*

*PINPOINT ACCURACY*

*NOTHING TO HOLD BUT AN ELECTRODE "PENCIL"*

●

**Pencil Thin for EASIER, FASTER, SOLDERING of:**

- Electronic Circuits and Parts
- Aircraft Connectors
- Pin Type Plugs
- Wire-to-Wire
- Terminals
- Radio and TV Chassis
- Instruments
- Printed Circuits

●

**Tips for Every Small Job**

—2 sizes of double carbon, single carbon with ground clamp, double metallic. May also BE USED AS SOLDERING IRON—two sizes of chisel tip irons.

*Tips Screw In to Fit the Job*

DOUBLE METALLIC

DOUBLE CARBON

*Other Tips Available*

An all-new production tool that makes small and miniature soldering simpler and surer than ever before. Solders some joints in less than 1 second! . . . Lighter and easier to handle than soldering irons or guns—a woman can use it all day without fatigue! Check this unique combination of features:

**GETS INTO SMALL, TIGHT SPOTS** because of smaller electrode pencil.

**NO HEAT DAMAGE**—instant resistance heating makes sound joints before resistors, condensers, printed circuits, terminal fibre, etc., can be damaged. Pinpoints the heat!

**NO "COLD FLOW JOINTS"** — resistance principle requires that metal be heated before the solder will flow. Tap switch adjusts heat.

**SAFE**—soldering pencil uses harmless (6v) voltage and high amperage from separate step-down transformer.

**LESS FIRE HAZARD**—electrodes are hot only when in use.

**LESS REPLACEMENT COST** — only low cost electrodes to buy.

MAIL FOR FURTHER DATA

SOLD THROUGH LEADING DISTRIBUTORS

IDEAL INDUSTRIES, Inc.
1108 Park Avenue, SYCAMORE, ILLINOIS

Please send catalog data on NEW IDEAL THERMO-TIP

NAME.....

COMPANY.....

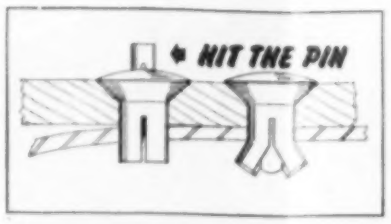
ADDRESS.....

CITY.....ZONE.....STATE.....

If you write maker identify as IEN - 11819

## FASTENING .. Aluminum rivet requires access to only one work face

Source: SOUTH CHESTER CORP.
N. Governor Printz Blvd. & 3rd St., Lester, Pa.




**Makes a tight assembly**

**Oval head** countersunk design has been added to the company's line of "blind" aluminum rivets for application in wood and metal. The rivet was initially produced to attach molded plywood to tubular frames in furniture manufacture. It requires access to only one side of the work and can be placed and set quickly.

**Construction** includes an aluminum drilled and split shank and integral head with a cadmium plated carbon steel pin. The pin extends to the base of the drilled hole inside the shank and rides above the head, as shown to the left in the illustration. When this pin is struck with a hammer it spreads the split shank, as shown to the right, and comes down flush with the head surface. Three sizes are 1/8, 3/16 and 1/4 in. in shank diameter. Grip length ranges from 3/32 to 5/8 inch.

If you write maker identify as IEN - 11820

## MARKING .. Colored plastic tape, adhesive faced, to outline aisles

Source: PERMACEL TAPE CORP.
Highway One, New Brunswick, N. J.

**Tough for long wear**

**Three colors,** white, red and yellow, and any desired width can be specified, for the company's new self-adhesive Permacel-32 plastic tape, to outline floor areas, aisles and overhead limits. The new tape is not subject to attack by ordinary solvents, acids, grease, oil, water or alkalis. It adheres firmly, as soon as it is put down, from the rolls in which it is supplied.

If you write maker identify as IEN - 11821

## CUTTING .. Diamond rim disc for soft masonry and refractories

Source: CLIPPER MFG. CO.
2802 Warwick, Kansas City 8, Mo.

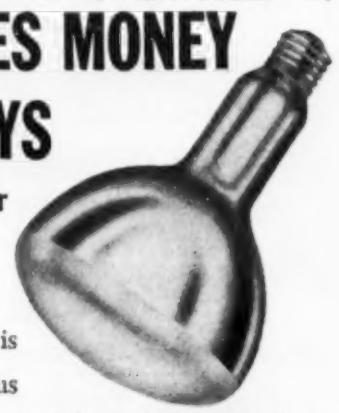
**A disc at work**

**Concrete** and pumice blocks, Haydite, Waylite, soft tile and certain refractory materials can be cut with the company's new steel center diamond rim disc. Construction employs a new alloy to bond and hold the diamond particles so the comparatively soft materials cannot tear them from the cutting edge. The new discs range from 8 in. up in diameter. They are designed particularly for the company's masonry saw, for wet or dry operation, but can be used also on other masonry cutting equipment.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11822

## NEW...SAVES MONEY IN HIGH BAYS



**Amplex R-57 lamp never needs cleaning despite smoke and dust**

AMPLEX R-57 LAMP is designed for continuous maximum light output in high bays. Its unique shape and *pure silver,* sealed-in reflector abolish all need for cleaning and for auxiliary reflectors . . . grime and dust never obscure the under surface from which light is projected. Available in 500 and 750 wattages. Save money! Write for full facts. **Amplex Corporation, Dept. X-10 111 Water St., Brooklyn 1, N. Y.**

**AMPLEX**

Incandescent, Fluorescent, Sealed-Beamed Reflector, Intra-Red, Rough Service, Mercury Vapor, Photoflash, Street Lighting and Traffic Signal Lamps, Swivelites, Hi-Hats and Display Lighting Accessories.

If you write maker identify as IEN - 11823

## JET PULVERIZER

for coal, chemicals, minerals

**"Follow the arrows:"**

A. Input hopper
B. Feed passages to impingement chamber
C. Steam or air supply jets
D. Jet housings
E. Point of materials impingement
F. Upward flow of pulverized material
G. Air input
H. Classifying fans and chamber
J. Return passage for "heavies"
K. Exit point for "fines"
L. Adjustable classifier drive

***Ask for bulletin, "Jet Pulverizers"***

MAJAC ENGINEERING COMPANY
187 Freeport Road • Blawnox, Pa.

If you write maker identify as IEN - 11824

## *Which do you have?*

## "Shortstub" ELECTRODE HOLDERS

**Convert the total fluxed portion of every electrode into weld metal — REDUCE STUB WASTE TO A MINIMUM**

**TWO SIZES FILL ALL NEEDS**

Write for free 16 page booklet "How to Conserve Electrodes"

SPECIFICATIONS

| Length Inches | Wt. Ozs. | Cap. Amps. | Electrode Size | List Price |
|---|---|---|---|---|
| 8 7/8" | 17 | 400 | 1/16 to 1/4" | $6.90 |
| 10 7/8" | 24 | 600 | 3/32 to 3/8" | 7.90 |

Quantity Prices Save You 10 to 20%

*Manufactured By*
**BERNARD WELDING EQUIPMENT COMPANY**

10220 AVENUE N, CHICAGO 17, ILLINOIS

If you write maker identify as IEN - 11825

## USE ACME ELECTRIC DRY-TYPE TRANSFORMERS TO

- ELIMINATE DOUBLE WIRING
- DISTRIBUTE POWER AT HIGH VOLTAGE
- PROVIDE 3 WIRE SECONDARY CIRCUITS
- OPERATE 120 VOLT EQUIPMENT FROM POWER CIRCUITS
- BOOST VOLTAGE
- BALANCE VOLTAGE
- INSULATE CIRCUITS

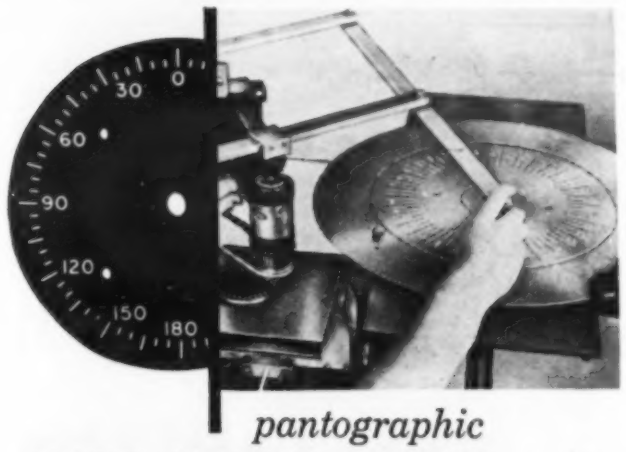
Available in sizes 1/10 to 167 KVA, 1 phase 60 cycle; 9 KVA to 500 KVA 3 phase 60 cycle. Class "A" and Class "B" insulation.

*Write for Catalogs*

**ACME ELECTRIC CORPORATION**
2610 WATER STREET • CUBA, N. Y.

Acme ACME Electric
TRANSFORMERS

If you write maker identify as IEN - 11826



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**CALIBRATING** *and* **ENGRAVING**

**rapidly done by unskilled labor**

*with New Hermes* Engravograph

*Write direct to us for literature*
Bench Type Model H23 *(weight 200 lbs.)*
Portable Model 1M also available

**NEW HERMES, INC.** 13-19 University Place, N. Y. 3
Representatives in all principal cities. Canada—359 St. James St., Montreal

If you write maker identify as IEN - 11827

Newark Wire Cloth is made of *all* malleable metals such as aluminum, brass, bronze, phosphor bronze, copper, monel, Nichrome, nickel and stainless steel; as well as the noble metals such as gold, silver, platinum, etc.

This wide range of metals enables you to select the one wire cloth to meet your conditions of corrosion and/or contamination.

In all metals, Newark Wire Cloth is accurately woven in a wide range of meshes, ranging from very coarse (4 inch space cloth), to extremely fine (up to 400 mesh). Our reputation for 'Accuracy' through more than 75 years is your guarantee of wire cloth quality.

We maintain a large stock of popular sizes in the more commonly used metals and can make prompt shipment. Let us quote on your requirements.

**Send for our New Catalog E.**

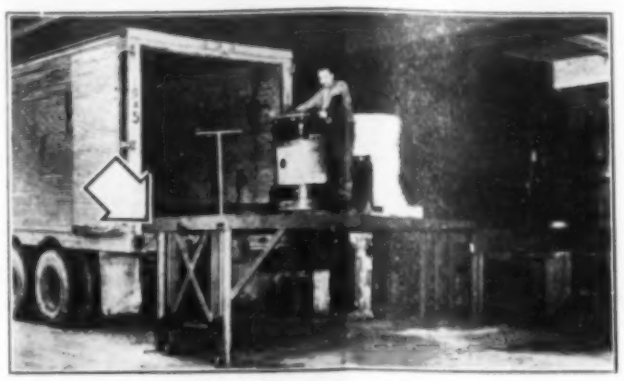
**Newark Wire Cloth COMPANY**

**351 VERONA AVENUE • NEWARK 4, NEW JERSEY**

If you write maker identify as IEN - 11829

## FLOORS . . Retractible platform extends from face of a loading dock

**Source: SUPERIOR RAILWAY PRODUCTS CORP.**
**510-14 Franklin Ave., Pittsburgh 21, Pa.**



**Sizes and capacities to order**

**Special construction,** shown in the illustration, has been employed to produce a new retractible platform that can be run out from the edge of a loading dock that is not directly accessible to the rear of an over-the-road truck. The platform provides horizontal movement of about 11 feet. It draws back so it does not obstruct the passage way in which the trucks operate. A hinged apron spans between the platform deck and the truck bed to permit traffic.

If you write maker identify as IEN - 11830

## HARD FACING . . Overlay material melts to thin surface on metal

**Source: EUTECTIC WELDING ALLOYS CORP.**
**40-42 172nd St., Dept. P., Flushing 58, N. Y.**

**Hardness tests**
**65 Rockwell C**

**Instant Overlay** KR 6900 is a new hard facing material in powder and paste forms to apply on metal. The material can be spread or brushed on the surface. Then it is melted with a torch or carbon arc. Applications are particularly in maintenance of metal steps, ramps, truck forks, work surfaces subject to abrasive wear. Packaging is in 2 and 5-lb. units.

If you write maker identify as IEN - 11831

## FURNITURE . . Steel work bench takes brick top, for use by welders

**Source: INDUSTRIAL BENCH & EQUIPMENT MFG CO.**
**98 South St., New Britain, Conn.**

**User supplies bricks**

**Welded assembly** characterizes this new 36½ by 36½ by 33½-in. bench. It is equipped with a shelf to hold welding rod and a drawer measuring 18 by 22 by 5 inches. It takes standard fire brick measuring 9 by 4½ by 2½ in. to nest in the top structure. A lock or a padlock attachment can be specified for the drawer.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11832

A PAID NEWS ADVERTISEMENT BY WEST DISINFECTING CO.

## COMPLETE FLOOR MAINTENANCE MANUAL

**tells how to preserve floor surfaces**

This free booklet is packed with floor know-how and show-how. It contains valuable tips on every conceivable floor problem. A few minutes with it can save hundreds of man-hours a year.

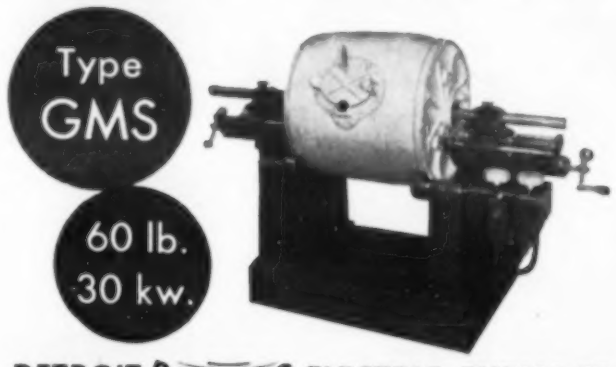
"Proper Care of Floors" condenses all the wide experience West Disinfecting Company's men have gathered over many years in working with thousands of acres of floors. The book tells what kind of maintenance has proved best and most economical for all kinds of floors and all kinds of traffic situations.

How should new terrazzo be handled? Can old wood floors be restored? Can cement be swept without raising dust? Can a rubber floor's deterioration be halted? Hundreds of questions like these are answered fully and authoritatively.

There is no short cut to proper floor preservation. Yet the right kind of floor treatment is easier than improper treatment. And often a floor considered hopeless has many years of service left in it if properly protected. This booklet tells how. Published by the West Disinfecting Company, Dept. 13, 42-16 West Street, Long Island City 1, N. Y.

If you write maker identify as IEN - 11833

## All the refinements of its big brothers!




**DETROIT ROCKING ELECTRIC FURNACE**

This compact, efficient 60-lb. furnace has all the features of the famous, large capacity Detroit Electric Furnaces that melt metal for world famous products. Type GMS produces uniform, high quality melts with efficient and economical use of power. It's excellent for limited production, and for experimental and educational use. New rocking controller, 3-phase motor and independently-mounted electrode brackets are new features . . . Sold complete with transformer. Write for information.

**DETROIT ELECTRIC FURNACE DIVISION**
KUHLMAN ELECTRIC COMPANY
1050 26th St. • BAY CITY, MICHIGAN

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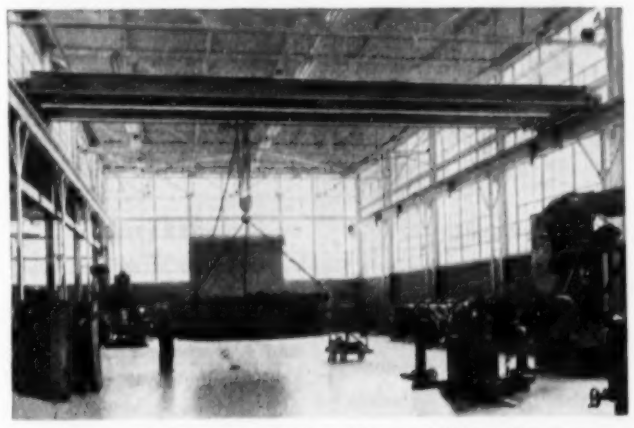
If you write maker identify as IEN - 11834

## NORTHERN HI-LIFT OVERHEAD CRANES



For Safety—Durability—Dependable Operation with minimum maintenance—these NORTHERN HI-LIFT CRANES are especially developed for low headroom operation and floor control. Let us send you further details in

**BULLETIN HL-115-R**

NORTHERN ENGINEERING WORKS, 2615 Atwater St., Detroit 7, Mich.

**NORTHERN CRANES AND HOISTS**

If you write maker identify as IEN - 11835

## standardize on standard

**HALLOWELL CABINET BENCHES**

Finest all-steel construction, smooth, rigid working surfaces, free-sliding, carefully fitted doors, and roller bearing drawers make them outstanding. Functional design blends with any industrial interior. Standard accessories permit you to custom build them to your requirements. Stocked and sold by industrial distributors. Write for literature. SPS, Jenkintown 14, Pa.

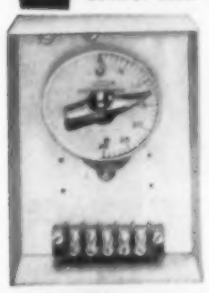
*Our Fiftieth Year* : A START FOR THE FUTURE

HALLOWELL SHOP EQUIPMENT DIVISION **SPS** JENKINTOWN PENNSYLVANIA

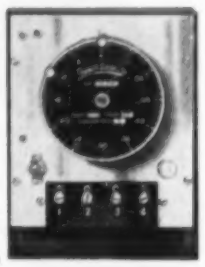
If you write maker identify as IEN - 11836

**Performance . . .**

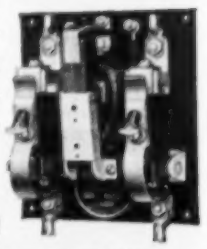
Zenith means "highest point." This literally describes Zenith dependability, "on the dot," as shown by records of long trouble-free, maintenance-free service in widest range of control uses.



## Zenith automatic controls



Cover the field: Magnetic Contactors, Remote Control, Reset, Interval and Process Timers, gearless, clutchless Impulse Timers, Program Clocks —also special equipment for your special needs.



WRITE NOW FOR COMPLETE CATALOG!

See classified telephone directory for name of local distributor

**ZENITH ELECTRIC CO.**
146 West Walton Street Chicago 10, Illinois

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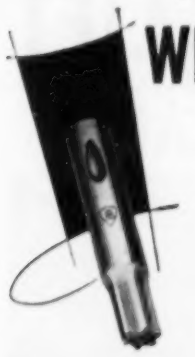
If you write maker identify as IEN - 11837



## WHERE R-B PUNCHES Cut Your Costs . . .

**• IN DIE DESIGNING**

. . . you save "board time" by working with the standardized R-B concept of punches, die buttons, punch retainers and die button retainers. R-B standardized equipment reduces drafting time to cut your costs.

**• IN DIE CONSTRUCTION**

. . . you save "building time" because R-B punches, die buttons, punch retainers and die button retainers are furnished completely finished. R-B saves skilled die-maker's time to cut your costs.

**• IN DIE OPERATION**

. . . you save "press time" because R-B punches and die buttons are instantly removed and replacements quickly inserted. Inherent accurate alignment and positive locking keep press down-time at a minimum to cut your costs.

***Use R-B Engineering Service for Your Tough Piercing Problems***

**RICHARD BROTHERS PUNCH DIVISION**
ALLIED PRODUCTS CORPORATION
DEPT. 75 • 12615 BURT ROAD • DETROIT 23, MICHIGAN

*Also Produced in* **OTHER ALLIED PLANTS**
SPECIAL COLD FORGED PARTS • STANDARD CAP SCREWS
PRECISION GROUND PARTS • SHEET METAL DIES MADE OF FERROUS ALLOYS, ZINC ALLOYS OR PLASTICS

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If you write maker identify as IEN - 11838

# TEMPILSTIKS°

*the amazing Crayons that tell temperatures*

it's this simple:

- Select the **Tempilstik°** for your working temperature.
- Mark your workpiece with it.
- The **Tempilstik°** will leave a liquid mark as soon as its specified temperature is reached.

**in**
WELDING
FLAME-CUTTING
TEMPERING
FORGING
CASTING
MOLDING
DRAWING
STRAIGHTENING
HEAT-TREATING
IN GENERAL

**$2** each

gives up to 2000 readings

Available in these temperatures (°F)

| | | | | | | |
|---|---|---|---|---|---|---|
| 113 | 213 | 313 | 450 | 850 | 1250 | 1650 |
| 125 | 225 | 325 | 500 | 900 | 1300 | 1700 |
| 138 | 238 | 338 | 550 | 950 | 1350 | 1750 |
| 150 | 250 | 350 | 600 | 1000 | 1400 | 1800 |
| 163 | 263 | 363 | 650 | 1050 | 1450 | 1850 |
| 175 | 275 | 375 | 700 | 1100 | 1500 | 1900 |
| 188 | 288 | 388 | 750 | 1150 | 1550 | 1950 |
| 200 | 300 | 400 | 800 | 1200 | 1600 | 2000 |

Also available in pellet and liquid form.

BOOTH 841 NATIONAL METALS SHOW

TEMPIL CORPORATION
11 West 25th St., New York 10, N. Y.

**FREE**—Tempil° "Basic Guide to Ferrous Metallurgy" —16¼" by 21" plastic-laminated wall chart in color. Send for sample pellets, stating temperature of interest to you.

NAME _____
COMPANY _____
ADDRESS _____

---

If you write maker identify as IEN - 11839

## CLEANING . . Degreasing equipment uses standard steel drum as the tank

**Source: BARON INDUSTRIES**
**239-43 West Ave. 26, Los Angeles 31, Calif.**

**Plugs in anywhere**

**Steel drum,** supplied by the user, mounts in the circular base of this new Baronet degreaser. A 2-kw. electric heating element, assembled in the base, supplies vaporizing heat for the 5 gal. of trichlorethylene cleaning liquid. Work pieces are suspended in the vapor which causes the dirt and grease to drip off leaving the work clean and hot for self-drying.

**Vapor height** is limited by an air cooled condenser on the side of the 55-gal. drum. Work space measures 23 in. in diameter by 18 in. in depth. Operation is controlled by a thermostat. Connection to a power source is by a 15-ft. cord and plug.

---

If you write maker identify as IEN - 11840

## LATHE TOOLS . . Alloy bits for work with abrasive characteristics

**Source: VASCOLOY-RAMET CORPORATION**
**850 S. Market St., Waukegan, Ill.**

**Technical data in Catalog VR-451**

**Tantung 144** is a recent addition to the company's previously developed Tantung-G cast alloy. The new material has Rockwell hardness of 61 to 64 on the C scale. It breaks at 7,500 lb. in transverse rupture test on a ⅜ by ⅜-in. specimen on a 1½-in. span. Modulus of rupture is 300,000 lb. per sq. in.

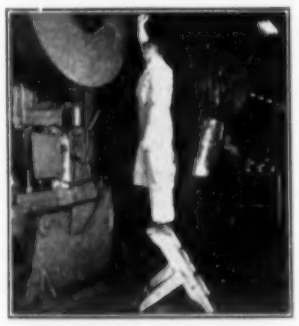
**The alloy** is particularly useful where resistance to abrasion is important and where the absence of shock or impact will permit its use. It is available in round, square and rectangular tool bits. Square units range from ¼ to 1 in. in section and from 2½ to 6 in. in length.

---

If you write maker identify as IEN - 11841

## LADDER . . Hard wood folding unit provides stable support for a worker

**Source: D. O. KEPLER**
**32-36 Reed Ave., Marcellus, N. Y.**



**Solid and safe**

**Kant-Tip** trade names new folding ladder in which the pivoted rear legs ride against a cross member on the step sides. The arrangement provides stable support when a worker is standing on any step, including the 9 by 22-in. top. The ladder folds to measure 6 by 22 by 30 in. when it is not in use. The back leg design permits setting the top step close to the work even though the legs extend a little beyond its plane. Thickness is $\frac{13}{16}$ inch.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

---

If you write maker identify as IEN - 11842

# Now Save 36%
## On Installation Time

**with IMPERIAL Hi-Duty® TUBE FITTINGS**

***Just push tube into fitting without removing nut and tighten . . . that's all.***

**Furnished in Brass, Aluminum, Steel and Stainless Steel For Tubing ⅛" to ¾" O.D.**

***See Your Supply House***

***Ask for Bulletin No. 3002***

Repeated, thorough tests reveal that IMPERIAL HI-DUTY FITTINGS can be assembled in 36% less time than regular COMPRESSION TYPE FITTINGS . . . and in 71% less time than FLARE TYPE FITTINGS. These are spectacular savings.

Fitting is furnished with integrated nut and sleeve assembled. To get a tight joint, simply insert tube into fitting and tighten nut. No loose sleeve to drop.

*MAKES FAR STRONGER JOINTS* because sleeve is always in perfect alignment and because its design minimizes deformation of tubing. Hi-Duty Fittings remain leakproof even under severe service; withstand over 5 times as much vibration as ordinary compression or flared fittings.

**THE IMPERIAL BRASS MFG. CO.,** 508 S. Racine, Chicago 7, Illinois
*In Canada: 334 Lauder Ave., Toronto, Ontario*

**IMPERIAL** Pioneers in Tube Fitting and Tube Working Tools

---

If you write maker identify as IEN - 11843

## *FAST MOVING LINE TO MORE PROFITS*

VIA "STREAMLINER" **CONVEYORS**

Yes . . . on the move to faster handling of goods, at a reduction in handling costs! If you've never visualized a "Streamliner" engineered conveyor in your plant, just take a moment to determine where you could use one. Shipping? Receiving? Production? Storage? No matter where, "Streamliner" Conveyors will save you time, money and man-effort. Get complete facts today by requesting Bulletin 302.

*Ferguson designs and manufactures a variety of conveyors and conveyor systems to meet individual requirements.*

**HARRY J. FERGUSON COMPANY**
125 WEST AVENUE, JENKINTOWN, PENNA.

---

If you write maker identify as IEN - 11844

## SPEED UP YOUR SMALL PARTS PACKAGING

*PACKS! PRINTS! COUNTS!*

Packmaster Model 50 automatically makes moisture-proof, heat sealed packages (in a variety of sizes) from 2 rolls of various heat sealing materials. Conforms to many Government specification packaging jobs. Each package is individually printed with complete specifications and/or contents. Easy to change from one size package to another in a few minutes. Many users report complete 3" x 3" packages made, filled, individually printed and counted for as low as ¾c each (including cost of packaging material).

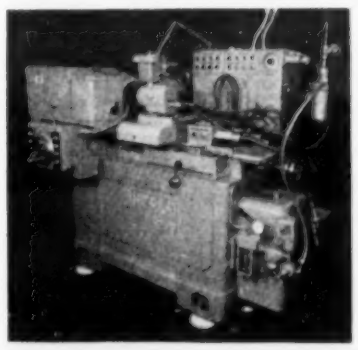
SEND FOR COMPLETE DETAILS

**PACKMASTERS** 1056 HOME AVE. AKRON 10, OHIO

---

If you write maker identify as IEN - 11845

## *Protect the Precision of Your Machines with*
## NEW LEVELING BARRYMOUNTS



When chatter marks spoil your fine finishes, vibration from an outside source may be to blame. It may come from punch presses in another part of your plant, or it may come from passing traffic or from heavy machinery next door.

But vibration can't keep you from getting that beautiful mirror finish—if you set your grinders on the new LEVELING Barrymounts.

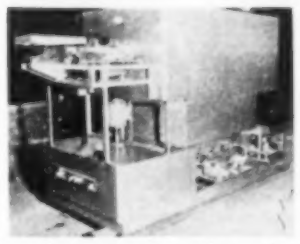
- They isolate your precision grinders from building-borne vibrations that can cause chatter marks.
- They absorb vibrations that destroy precise machine adjustments.
- They keep shock and vibration from causing inconsistent operation of delicate automatic and electronic controls.

### *Barrymounts cut your costs*

by stopping spoilage due to vibration. They're low in cost—and backed by a money-back performance guarantee. Just tell us the make and model of your grinders and we'll tell you how you can protect their precision with the new LEVELING Barrymounts. And write for data sheet showing the additional advantages of these cost-cutting conveniences. The Barry Corporation, 738 Pleasant Street, Watertown 72, Mass.

If you write maker identify as IEN - 11846

# Ferguson FUEL OR ELECTRIC FURNACES



The Ferguson Unitline illustrated is just one example of the many new types of furnace equipment developed by the Ferguson Equipment Corp. The unit is a completely self contained continuous heat treating unit which can be placed directly in a production line or in the heat treat department. The unit is suitable for hardening or carburizing and the quench, wash, rinse and draw operations are automatically performed in the same unit in less than half the floor space required by separate units.

Your inquiry will be welcome whether for a special production problem or in a standard furnace.

**FERGUSON EQUIPMENT CORP.**

*Industrial Heat Treating Equipment*

21st Street and Penn Avenue • Pittsburgh 22, Pa.

If you write maker identify as IEN - 11847

**ADDED FEATURE in Midget 2 & 3 Way Solenoid Valves**

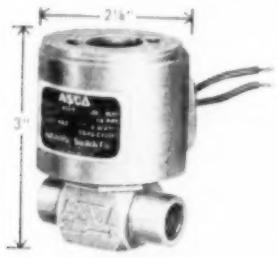
ASCO

# Explosion-Proof

protection for

Personnel, Production & Plant

ASCO Midget Valves are now available with explosion-proof housings, designed in accordance with Underwriters' recommendations for use in Class 1, Group D hazardous locations. These Bulletins 8262 & 8314 ASCO Valves with the Explosion-Proof Solenoid Enclosure (they're also water tight) may be just what you need. Classed as "small" valves, they are doing a big job in the automatic and remote control of air, gas, water, light oils, refrigeration and other fluids.




Bulletin 8262 Two-Way ASCO Solenoid Valves (illustrated) can be obtained with by-pass and metering devices. Valves can be installed in any position. Bulletin 8314 Three-Way Valves can be applied to any 3-way valving requirement regardless of flow directions or pressure application points; no change of springs or other adjustments are necessary. These valves can also be mounted in any position and will give positive tight shut-off.

**BULLETIN 8262**

**2-Way Valve (Normally Closed)****

(Available for all commercial and industrial voltages)

| Body Material | | Brass or Stainless Steel | | | |
|---|---|---|---|---|---|
| Pipe Sizes (inches) | | 1/8 | | 1/4 | |
| Orifice Diameters (inches) | | 1/16 | 1/8 | 5/32 | 3/16 |
| Maximum Pressures lbs./sq. in. | A-C | 300* | 130 | 90 | 60 |
| | D-C | 250 | 70 | 50 | 30 |

*Available 1000 psi in stainless steel; 500 psi in brass.
**Also available normally opened.

**BULLETIN 8314**

**3-Way Valve**

(Available for all commercial and industrial voltages)

| Body Material | | Brass or Stainless Steel | |
|---|---|---|---|
| Pipe Size (inches) | | 1/8 | |
| Orifice Diameters (inches) | | 3/64 | 3/32 |
| Maximum Pressures lbs./sq. in. | A-C | 125 | 45* |
| | D-C | 50 | 25* |

*Pressures slightly lower for liquids.

Since 1888 ASCO Engineers have specialized in the constantly expanding field of Electromagnetic Controls. They have pioneered many new developments and have revolutionized many of the older concepts of automatic controls. Industry looks upon ASCO as one of the leaders in Electromagnetic Controls. Why not let our engineers help you with your problem whether it involves control on a machine of any kind you are designing or control of liquid or gas in your plant?

We also manufacture other types of Electromagnetic Controls including Automatic Transfer Switches, Remote Control Switches, Contactors, Relays and complete Control Panels.

**Write for free pamphlet "Small Solenoid Valves."**

ASCO Solenoid VALVES

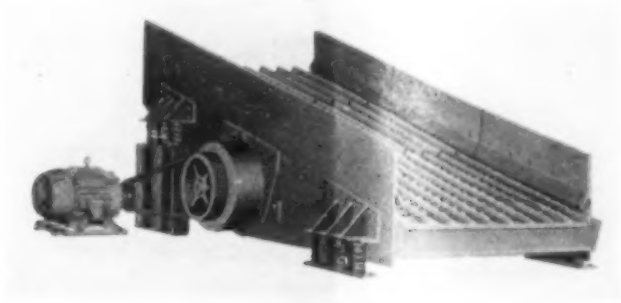
**Automatic Switch Co.**

383 LAKESIDE AVENUE · ORANGE, NEW JERSEY

If you write maker identify as IEN - 11849

## SCREENING . . Motor driven unit, vibrating action to scalp rock and ore

Source: LINK-BELT COMPANY
305-9 N. Michigan Ave., Chicago 1, Ill.



Folder 2461

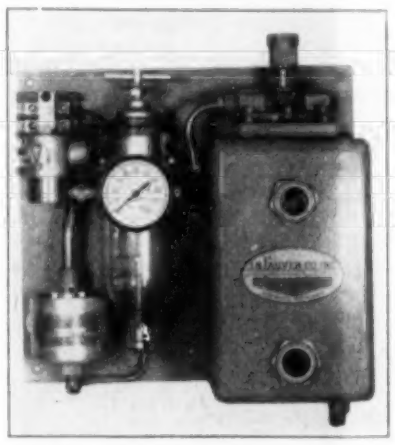
**The vibrator** in this new heavy duty scalping screen is enclosed to exclude dirt. It is adjustable by varying the amount of segmental weights to provide a required screening action. The mechanism is floating design and includes automatic controls to limit motion during acceleration and deceleration. Helical springs isolate the frame vibration from the foundation and concentrate the motion in the deck.

**Deck construction** is a combination of flange H-beams and channel sections designed to absorb impact by heavy boulders. Heavy perforated plates with riding bars or a grizzly deck can be specified. Two deck widths are 58 and 70 inches. A 20-hp. motor, operating at 1,750 rpm., is required for the drive.

If you write maker identify as IEN - 11850

## LUBRICATING . . Air operated unit atomizes and delivers oil to bearings

Source: J. N. FAUVER COMPANY
51 W. Hancock Ave., Detroit 1, Mich.



Automatic

**Oil-Air** trade names new lubricating equipment for application on ball, roller or plain bearings, slides, cams, rollers, chain, gearing. It supplies a constant uniform oil film from a reservoir to groups of bearings by atomizing the oil into microscopic particles and then carrying them in an air stream through a pipe line to the various bearing points.

**Connection** is made to a source for compressed air, at 100 lb. or less, and a source for electric current. The air passes through a solenoid valve to a regulator where the pressure is reduced to 10 pounds. This low pressure issues from the regulator to enter a venturi where it draws oil from the reservoir in adjustable amount and reduces it to minute airborne particles or to a heavier spray, depending on the setting. The equipment includes a filter and water separator to assure clean dry air supply.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11851

# WORK INSPECTION MIRRORS

**speed production • prevent accidents**

- Exclusive All-Angle Ball Joints
- Precision Engineered
- Replaceable Copper-Backed Clear View Mirrors
- Folds and Fits into Pocket
- Many Sizes Cover Practically All Applications

WRITE FOR YOUR COPY OF COMPLETE ILLUSTRATED CATALOG 1

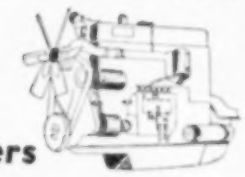
**ULLMAN PRODUCTS CORPORATION**

17 RIVER STREET • NORWALK, CONNECTICUT

If you write maker identify as IEN - 11852

# CUT ENGINE OPERATING COST . . .

***Accurate R. P .M. Indication with Electric Tachometers***



***Tell You How.***

1) Determine and maintain your engine operation at its best fuel economy and output speed.

2) Protect engine from overspeed and abuse by being able to work within factory recommended R.P.M. range.

3) Check and control work output right at the power source with no delay and loss of material, whether pumping, moving, lifting, etc. Scales made to read in Gals/hr., Cans/hr., F., M.P. etc.

4) Electric tachometers help make jobs easier and more profitable, while protecting and reducing equipment operating costs.

Easy to install with indicator at any distance from engine; No flexible shaft worries. No wearing parts or batteries.

Generator and Indicator complete with custom made scale for your exact speed range and ratio, $42.75 & up.

*SEND FOR MORE INFORMATION*

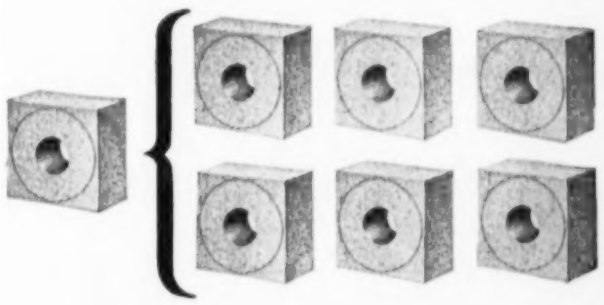
**THE ELECTRO-MECHANO COMPANY**

269 East Erie Road, Milwaukee 2, Wisconsin

If you write maker identify as IEN - 11853

# B&W KAOCAST

*Last 3 to 6 times longer*



**Used for burner blocks,** B&W Kaocast stayed on the job 3 to 6 times as long as previous refractory...and this 3000F refractory castable is still going strong.

Kaocast is versatile, too...eliminates need for inventory of special shapes. It can be molded quickly by you, when you need it, directly in place or applied by cement gun. Put B&W Kaocast to work in your plant. Get all the facts from your B&W Refractories Engineer.

**THE BABCOCK & WILCOX CO.**

*Refractories Division*

GENERAL OFFICES: 161 EAST 42nd ST., NEW YORK 17, N. Y
WORKS: AUGUSTA, GA.

If you write maker identify as IEN - 11854

## standardize on standard

HALLOWELL

**SOLID STEEL COLLARS**

**now size-marked for easy identification**

42 stock sizes—each marked with shaft diameter for easy identification—are now available at your HALLOWELL distributors'. And these precision machined solid steel collars—in sizes from 3/16" to 3" inclusive—have the famous self-locking UNBRAKO Socket Set Screw to assure positive positioning on the shaft. Write for literature and the name of your nearest HALLOWELL distributor. STANDARD PRESSED STEEL Co., Jenkintown 14, Pa.

*Our Fiftieth Year* : A START FOR THE FUTURE

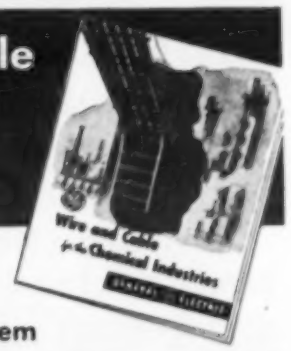
HALLOWELL POWER TRANSMISSION DIVISION

**SPS**

JENKINTOWN PENNSYLVANIA

*If you write maker identify as* IEN - 11855

## Wire and Cable for Chemical Industries




### New G-E booklet helps you select the proper wiring system

Here is a new, free booklet listing a complete selection of General Electric wire and cable for chemical plants or similar applications. Its 24 pages, devoted to applications, selection tables, and product descriptions, are particularly designed for electrical engineers in chemical plants, or similar locations, concerned with wiring system performance under conditions of exposure, abrasion, and corrosive atmospheres.

This booklet discusses the various distribution systems, and helps you select the wires and cables for each part of those systems which will best fit the needs of a chemical plant. For your copy of "Wire and Cable for the Chemical Industries," write Section W103-1042, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

*You can put your confidence in—*

**GENERAL ELECTRIC**

*If you write maker identify as* IEN - 11856

## How to get MORE PRODUCTION MINUTES per hour!

## Don't walk—TALK with Executone Intercom!

No need to waste time shuffling back and forth for information and instructions. Just push a button and *talk!* Walking time becomes *production* time. With Executone roving employees are located instantly...telephone lines are kept open for outside calls...more work gets done *faster!* Thousands of installations prove that Executone cuts costs and increases production—*pays for itself many times over!*

**Executone**

**INTERCOM AND VOICE PAGING SYSTEMS**

*Service on your premises by factory trained technicians*

**Get the Facts!** EXECUTONE, INC., Dept. K-6
415 Lexington Ave., New York 17, N. Y.

Without obligation, send booklet describing how Executone helps cut costs. I am particularly interested in:

- ☐ Plant-office communication
- ☐ Locating personnel
- ☐ Switchboard relief
- ☐ Penetrating high noise levels

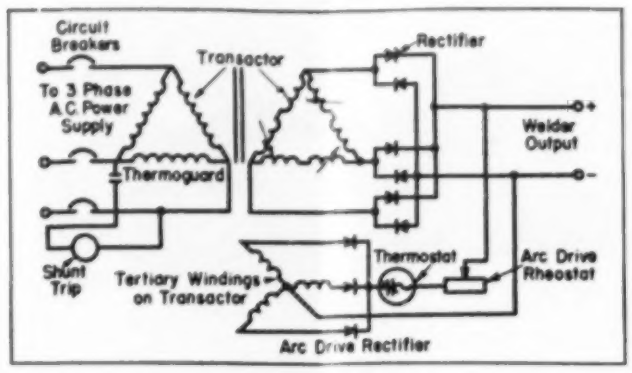
Name_____ Title_____
Firm_____
Address_____ City_____

*In Canada—331 Bartlett Ave., Toronto*

*If you write maker identify as* IEN - 11858

## WELDING . . DC arc machine, three phase ac. input, arc control

**Source: WESTINGHOUSE ELECTRIC CORP.**
**511 Wood St., Dept. IEN, Pittsburgh 30, Pa.**




**No rotating parts**

**Illustrated** is a simplified schematic circuit diagram of the company's recently improved selenium rectifier dc. arc welding machine, previously described IEN-10563-49. The main welder circuit is shown in combination with arc drive control, previously described IEN-11595-51. The latter circuit permits independent control of the dynamic and static characteristics of the welder by varying the ratio of short-circuit current to welding current for a stable arc.

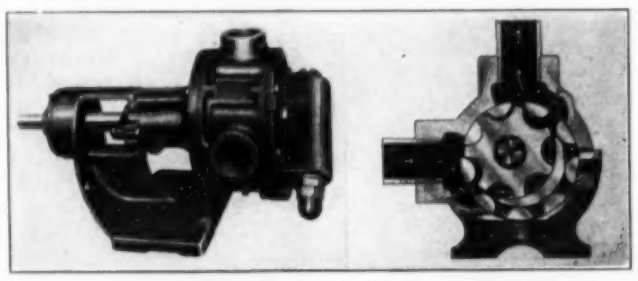
**The main circuit** includes a transformer and a plate type selenium rectifier. The transformer is a combination three-phase unit with a movable core reactor that is positioned, to vary output, by turning a crank on the rectangular housing containing the mechanism. The combination is known as a Transactor. Coils are made of aluminum with glass covered Class-B insulation, the design materially lessening the weight of the original copper coil assembly.

**Three ratings** are 200, 300 and 400 amperes. All mount in the one size of housing. Duplex assemblies are available with ratings at 300/600 and 400/800 amperes. The interior is air cooled with air flow upward through the bottom mounted main rectifier. The housing is designed to permit operation out of doors in wet or dry weather.

*If you write maker identify as* IEN - 11859

## PUMP . . Rotary gear design for "dry" liquids, ammonia, gasoline

**Source: SCHIRMER-DORNBIRER PUMP CO.**
**1717-21 E. 39th St., Cleveland 14, Ohio**



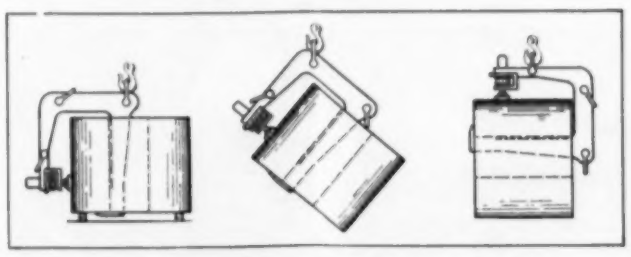
**For tank truck or stationary use**

**Round teeth** provide rolling action between the pumping gears in this new Dual Seal assembly. The pump is built in three sizes rating 35, 50 and 100 gpm. at 400 rpm. Overall length is about 22¼ to 24¾ inches. A reversible relief valve can be set for either direction of rotation. A double mechanical seal prevents leakage. The shaft is mounted in a double row radial thrust bearing to hold it in alignment. Seal caps protect the bearing against wear. The grease lubricating chamber holds a four-month supply.

*If you write maker identify as* IEN - 11860

## HANDLING . . Coiled steel grab to lift, carry, turn 7½ ton coils

**Source: DIXON AUTOMATIC TOOL INC.**
**2302-6 23rd Ave., Rockford, Ill.**



**Five is the safety factor**

**New design** has been added to the company's line of Coil Handlers, previously described IEN-715-53. The new unit is based upon a C-shaped frame with a chain operated screw backed pressure shoe to secure the coil. Three bales are located in holes in the frame for a crane hook. The shoe floats to center itself on the coil. The bales are located for straight lift with the horizontal axis, for straight lift with the vertical axis, and to turn the coil through 90 degrees.

**Minimum width** capacity is 24 in. and maximum is 48 inches. Minimum inside to outside diameter is 10 inches. Maximum is 16 inches. Weight of the handler is 500 pounds. Chain length, to operate the pressure shoe, is 10 feet.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

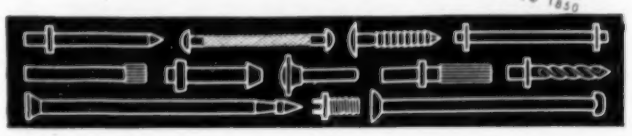
*If you write maker identify as* IEN - 11861

## WRITE FOR FREE fastener catalog

A complete, comprehensive handbook on cold-headed nails, rivets, screws and other special fasteners. Check on ways to improve your assembly cost-wise, appearance-wise and from a standpoint of maximum effectiveness at minimum cost. One hundred years of experience are at your service. Write for price quotations or for suggestions on the redesigning of your present assembly.

**JOHN HASSALL, INC.**
P. O. Box 2169 • Westbury, N. Y.

Hassall ESTABLISHED 1850



*If you write maker identify as* IEN - 11862

## Iron Powders

for electronic and industrial use

CATALOG 354
Important Technical Data on IRON POWDERS
MAGNETIC POWDERS INC.

**ASK FOR YOUR COPY**

WE CAN SUPPLY

- Annealed carbonyl iron powders
- Hydrogen reduced iron powders
- Natural magnetite (iron oxide) powders

*Laboratory controlled Quality Raw Materials*

**MAGNETIC POWDERS INC.**
Box 247 • Dept. IEN • Johnsonburg, Pa.

*If you write maker identify as* IEN - 11863

## "GIBRALTAR" OILS and GREASES REDUCE MAINTENANCE COSTS

With 44 years experience in the industrial field, we are in a position to help solve your lubrication problems.
We specialize in INDUSTRIAL LUBRICANTS for all INDUSTRIAL applications.
Our Oils prevent hard carbon, varnish, sludge and other known conditions.
Our Oils and Greases will reduce maintenance costs and down hours.
"GIBRALTAR" Oil Concentrates for lubricating oils and fuel oils.
"GIBRALTAR" Rad-Treate for rust preventive.
Complete line of "GIBRALTAR" lubricating oils for compressors, diesel engines, steam engines, gasoline engines and lithographing ovens.

*Our Engineers will be glad to help you with your lubrication problems. We invite your inquiries, small or large.*

**HOOD REFINING COMPANY**
Hood Building Manor, Pa.

*If you write maker identify as* IEN - 11864

# BALL-LOK
## V - BELT CLUTCHES
### OUTSTANDINGLY SUCCESSFUL FOR 1 TO 10 HP APPLICATIONS

THESE hi-speed, smooth, grab-less clutches save costs and improve any belt drive. Exceptionally useful for:

1) Auxiliary drives (pumps, generators, etc.)
2) Intermittent clutching up to 1000 engagements an hour
3) Lathes and drill presses
4) Speed reducers

Ball-Lok Clutches come complete with pulleys from fractional to 10 hp for direct mounting.

*Write today for Ball-Lok Clutch Catalog No. 31*

**V-Belt Clutch Co.**
418 N. WESTERN AVE., LOS ANGELES 4, CALIF.

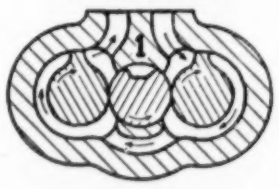
*If you write maker identify as* IEN - 11865

# BERRY
## Rotating Piston
## PUMP or MOTOR

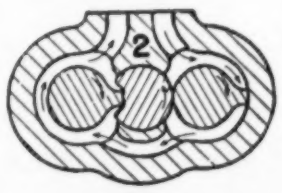
Operation as a pump or as a motor is continuous, smooth, quiet, without pulsation. Basic simplicity gives the design long life with low maintenance as pumps in elevator service or on machine tools. Used as transmission in oil fields, mines, steel mills, mobile vehicles, the rugged construction endures many thousands of hours of rough treatment in all climates without servicing.

**AS A MOTOR**

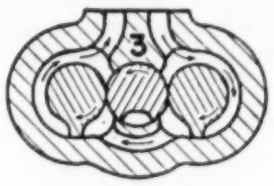
**All three members are geared together in a 1:1 ratio. Input shaft is on center member.**



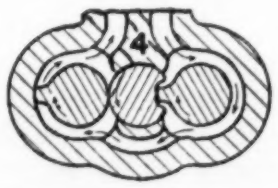

POSITION 1..Both pistons facing up, oil entering the right-hand port, driving both pistons in clockwise direction, exiting through the left port.




POSITION 2..Both pistons rotated to right, oil bypassing the left-hand one to the exit. The right-hand piston sealing against the center rotor or rolling seal.




POSITION 3..Both pistons rotated to face down, the oil driving both while the center rotor seals both pistons.




POSITION 4..Both pistons rotated to the left, the oil bypassing the right one and driving the left one. The left piston is sealing against the rolling seal.

**Two pressure ratings are 500 and 1,500 PSI. Rating is 60 to 240 GPM. for the 500 PSI. assembly with one to four pumping chambers on a common shaft. Rating is 9.4 to 28.2 GPM. for the 1,500 PSI. pump with one to three chambers.**

**A third series of units, 32-10 model, is now available in one, two or three chambers. Capacities, as pumps, are 60, 120 and 180 GPM. Motor ratings to 300 horsepower and pressures are 1,000 psi. continuous; 1500 psi., intermittent.**

### CATALOG 5209

***Explains action, shows sections and combinations, includes performance specifications and selection data.***

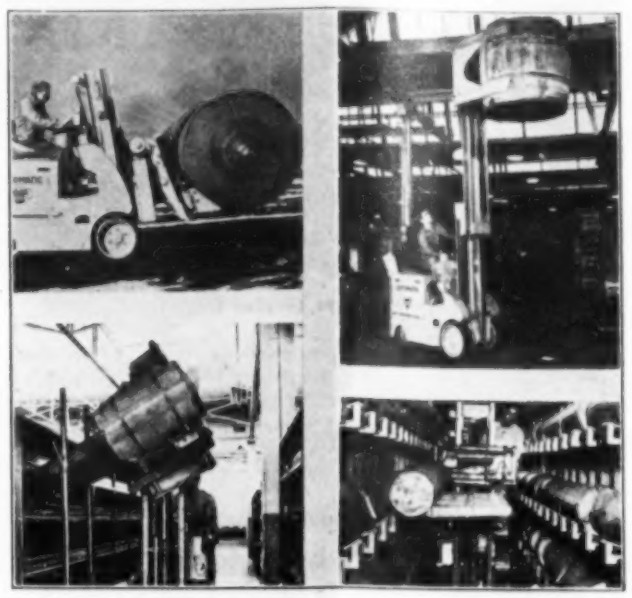
ALL MODELS OF ALL SERIES ARE AVAILABLE FOR IMMEDIATE SHIPMENT FROM STOCK.

**Berry Division**
**Oliver Iron and Steel Corporation**
1019 Oliver Building • Pittsburgh 22, Penna.

*If you write maker identify as* IEN - 11867

## TRUCK . . Load handling attachments are interchangeable for special uses

**Source: AUTOMATIC TRANSPORTATION CO.**
**149 W. 87th St., Chicago 20, Ill.**



**Typical of designs available to order**

**Illustrated** are four new load handling attachments for interchangeable application on the company's fork lift trucks. Each is designed for quick application and removal without special equipment, other than a chain hoist for heavier ones.

**Paper rolls,** weighing 2 tons, are gripped and handled on a revolving carriage that tilts and swivels as shown in the illustration to the upper left. The mechanism is equipped with a "wrist action" to grip a roll in horizontal position. It will pick up the roll, carry it and, if required, rotate it until it is vertical. It will lift it to store several, one on top of the other.

**Large wood barrels** are handled by the hydraulic clamp attachment shown to the upper right. This unit is available for barrels measuring to 40 in. in diameter and to 1½ ton in weight. The barrels can be lifted, transported, tiered to heights of 130 in. when the attachment is on the Skylift truck.

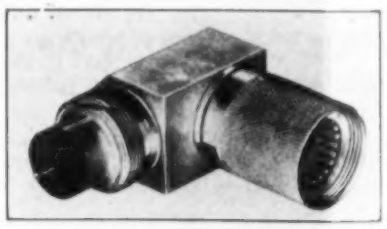
**A loaded barrel** can be lifted, carried to a storage location and then tilted to discharge work pieces, such as nuts, bolts, small castings, into storage bins, with the attachment shown to the lower left. This hydraulically actuated unit slides into place on the truck forks. It can be removed when it is not required and the truck is to be used in ordinary handling. Contoured forks move in and out for clamping action. The rotating carriage assists in load dumping in narrow aisles.

**Rolls** of fabric, such as carpets, are handled by the side loading attachment shown to the lower right. It will take loads to 12 ft. in length and will tier them on either side of a 40-in. aisle. Prongs on the attachment mesh with storage rack openings and; when the carrier is tilted, the load slides or rolls into place in the rack. This attachment rates 600-lb. capacity. It can pick loads from the rack as well as place them.

*If you write maker identify as* IEN - 11868

## CONNECTOR . . Pulse type unit, right angle design for confined space

**Source: H. H. BUGGIE & CO.**
**724-28 Stanton St., Toledo 4, Ohio**



**Details on request**

**Number B2897** is a new right angle pulse connector to mate with a standard UG 182 A/U receptacle. The connector is designed for 5,000-volt peak service at altitudes to 50,000 feet. It has a brass shell with tinplate finish.

*If you write maker identify as* IEN - 11869

## SCAFFOLD . . Steel shore with collar to adjust initial setting

**Source: WACO MFG. CO.**
**3559 Wooddale Ave., Minneapolis 16, Minn.**

**Four turns to tighten**

**Speedset** trade names new adjustment collar available on the company's steel shore. Lateral grooves, in the collar, are set at 1-in. intervals so the shore can be set up within an inch of a desired height. It is adjusted finally by turning a screw handle.

**Three height ranges** are 6 to 11 ft., 8 to 13 ft., 10½ to 15½ feet. A flat plate, 8 and 14-in. J heads are available. Nailing plates are welded to the shore for bracing in any direction. The 11-ft. unit, with a J-plate, weighs 52 pounds. Application is illustrated.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11870

Announcing a new service from Ampco

## AMPCO* METAL Grade 24 Die Blanks

**Now available from stock**

**. . . the dies for forming and drawing stainless steels that give you longer runs, reduce scrap loss, cut your costs.**

Now you get immediate delivery from Milwaukee stock and new low prices on most commonly used types and sizes of Ampco Grade 24 die blanks including:

34 sizes of solid rectangular pieces from ½" x 1" x 12½" to a maximum of 4" x 4" x 12½".

27 sizes of centrifugally cast blanks from 4" OD x 1" ID x 1½" thick up to 20" OD x 12½" ID x 2" thick.

11 sizes of solid rounds up to 5" OD x 12½" long.

Here's what you get with die blanks made from this remarkable alloy:

**1. Usual scrap losses are minimized,** because Ampco Grade 24 dies are non-galling, non-loading.

**2. You save finishing time and costs** — get a surface free from scratches and die marks.

**3. You get longer runs without re-dressings, longer die life, reduced downtime.**

Write today for complete information and new prices.

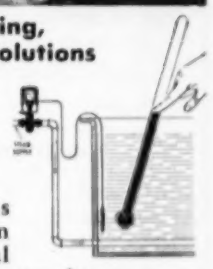
AMPCO®

**Ampco Metal, Inc.**
DEPT. IE-10 • MILWAUKEE 46, WISCONSIN
West Coast Plant, Burbank, California D-18

*Reg. U. S. Pat. Off.

*If you write maker identify as* IEN - 11871

**For Plating Anodizing, Bonderizing, Pickling, Cleaning and Rinsing Solutions**



POWERS No. 11-MF Regulators insure most effective use from various solutions by holding them at the right temperature automatically. They save Steam and Labor.

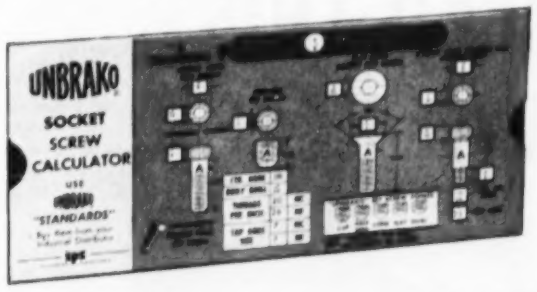
**Plastic Thermal Bulb and Tubing** is highly resistant to solutions used in above processes. Prevents electrical shorts. No insulators required for the regulator.

**Easy to Read 4" Dial Thermometer** indicates temperature of liquid being controlled and makes it easy to adjust regulator for different temperatures.

**Bulletin 330** fully describes this simple, self-operating regulator. May we send you a copy? (b30)

**THE POWERS REGULATOR CO., SKOKIE, ILL.**
Offices in over 50 Cities, see your Phone Book • Established in 1891

*If you write maker identify as* IEN - 11872




## Our New UNBRAKO Screw Calculator
# YOURS FOR THE ASKING

This handy pocket-sized slide-rule type socket screw calculator gives diameters, lengths, socket dimensions, threads and drill sizes—in fact, everything you want to know when using UNBRAKO socket screw products.

And it's free. Ask your UNBRAKO distributor or write SPS, Jenkintown 14, Pa.

**UNBRAKO®**

*Standard UNBRAKOs are sold by leading industrial distributors everywhere.*

SOCKET SCREW DIVISION

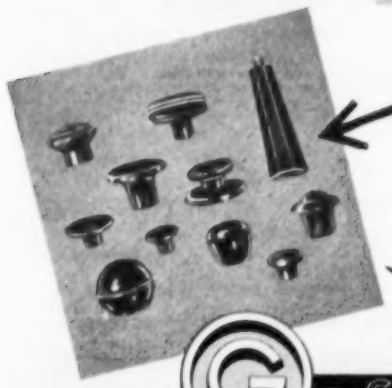
*Our Fiftieth Year* : A START FOR THE FUTURE **SPS**
JENKINTOWN PENNSYLVANIA

Self-Locking Set Screws | Flat Head Cap Screws | Shoulder Screws | Knurled Head Cap Screws | Dowel Pins | Button Head Socket Screws

*If you write maker identify as* IEN - 11873


**GRIGOLEIT** *keeps you in* **TRIM**

The demand for GRIGOLEIT small, plated stampings and finished zinc die-castings for appliance trim grows and grows. That's because manufacturers everywhere have discovered the outstanding sales appeal GRIGOLEIT experience and facilities bring to their product. You'll find GRIGOLEIT offers greater service and economy, too. Contact GRIGOLEIT today.



Here is a sample of quality GRIGOLEIT molded plastics. A complete line is available for your selection.

THE GRIGOLEIT COMPANY
"Serving Industry for Twenty-Five Years"
742 E. NORTH ST. DECATUR, ILLINOIS


*If you write maker identify as* IEN - 11874


**FAR LESS TIP BREAKAGE with "RING SEAT" CENTER DRILLS**

**USE "RING SEAT"**

**CENTER DRILLS**

**IF YOU GRIND BETWEEN CENTERS**

The "R" type, curved contour Ring Seat center drills give you a stable, accurate, precision center, quickly restored after heat-treat.

Ring Seat center drills produce a protected center at no extra cost—and carry a built-in discount because they last longer.

**Lapping After Heat Treat**

is a simple, quick operation since only about one-third the usual area needs clean-up. Lapping with a rotating felt wick removes heat scale and restores a perfect center — at the original place.

• A PREMIUM DRILL AT NO EXTRA COST •

LINK INDUSTRIES

13848 Elmira Detroit 27, Mich.

FREE CIRCULAR


*If you write maker identify as* IEN - 11875


**READ THIS AND REAP**

**Dollars Worth of Savings Every Time You Cut A Keyway**

With **du Mont** *Minute Man*® Keyway Broach Kits you can cut any standard size keyway from 1/16" to 1", in any bore from ¼" to 3", in any gear, milling cutter, pulley hub, collar or coupling

**in one minute for one cent each**

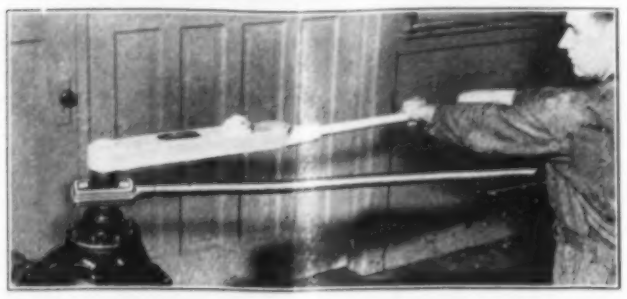
SAVE TIME
SAVE MONEY
CLIP THE COUPON

The du MONT CORPORATION, Greenfield, Mass.
Mail me free Catalog and Price List N on Minute Man Keyway Broaches and Kits.
*Name* .....
*Company* .....
*Address* .....


*If you write maker identify as* IEN - 11876

## WRENCH . . Torque indicating design has capacity to 1,000 foot pounds

**Source: MANZEL DIVISION**
**313-17 Babcock St., Buffalo 10, N. Y.**



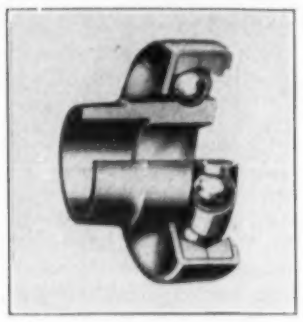
**Particularly to service trucks**

**A dial** on this new wrench reads torque applied by an operator. It continues to show the maximum reading after pull has been released. It is reset to zero by turning a knob. The wrench is available with forged steel sockets and an adapter, singly or in specified sets.

*If you write maker identify as* IEN - 11877

## CONVEYING . . Ball bearing for use in company's conveyor rolls

**Source: LOGAN COMPANY**
**276 Cabel St., Louisville 6, Ky.**



**The balls are caged**

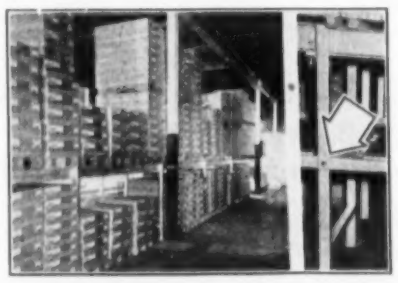
**Series 50-X** is a new retainer equipped ball bearing that has been developed by the company for use in new conveyor rolls and also for field replacement on Series-50 rolls in service. The bearing minimizes rolling friction to a point where 3 in. of difference is sufficient in elevation between the ends of a 10-ft. gravity section for free work movement.

**The bearing** fits a 7/16-in. hexagon shaft. It is available in roll assemblies measuring 1⅝ to 2½ in. in outside roll diameter.

*If you write maker identify as* IEN - 11878

## STORING . . Tubular steel rack designed for paper, takes extra shelf

**Source: EQUIPMENT MFG. CO.**
**21548-52 Hoover Road, Detroit 5, Mich.**



**Legs have floor plates**

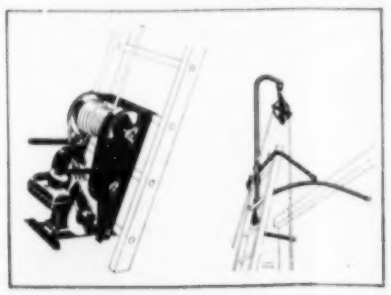
**End frames** made of tubular steel in welded assembly support horizontal top channel members in this new rack. It is designed for paper makers, dealers, printers, paper products manufacturers. The standard unit takes paper sheets to 22½ by 35 inches. Special sizes can be supplied with provision for slat flooring to stack unsupported stock.

**The end frames** are drilled, part way down from the top, to permit installation of an extra shelf so all of the rack space, from the floor up can be used to store large assortments in small quantities.

*If you write maker identify as* IEN - 11879

## WINCH . . Power operated unit with accessory parts for hoist duty

**Source: REIMANN & GEORGER INC.**
**67-71 N. Division St., Buffalo 3, N. Y.**



**On a ladder**

**Model 100-E,** with electric motor drive, and Model 100-G with a gasoline engine, are new winch assemblies. Both are designed to mount on a ladder in connection with an accessory head frame as shown in the illustration or on a ground stand or scaffold attachment. Lift capacity is 100 lb. and lift speed is 100 fpm. The drum is equipped with 80 ft. of ½-in. manila rope and has sufficient capacity to take 125 feet.

**The motor** rates ½ hp. and is available for operation on 110 or 220-volt ac. The engine is a 1 ½-hp. 4-cycle unit with a rope starter. List price is $98 for the motor driven assembly, $137 for the engine driven unit.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11880


**Sheehan's SPECIALIZED CONVEYORS**

**THREE VARIABLE PLANES!**

- Widely used in the automatic nut & bolt, and allied industries.
- Minimum under press clearance at loading point — 7½ inches.
- No pit necessary.
- Sheehan positive drive, spike studded pulley at drive end of belt eliminates slippage.
- Designed to specifications —stationary or adjustable in heights.
- Heavy duty, high carbon steel mesh belt rovides maximum lift and continuous performance at peak loading.

Complete literature upon request. Inquire TODAY!

We can design an automation program for your plant. Let us know your needs today.

*Conveyors*
R. T. SHEEHAN CO.
PLYMOUTH, MICH.


*If you write maker identify as* IEN - 11881


**Give yourself the**

**Unbeatable Performance of the RIDGID Heavy-Duty Pipe Wrench**

**Every RIDGID Wrench Factory-Tested**

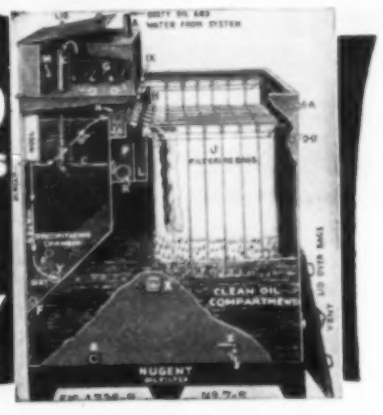
That's what makes sure that every RIDGID performs as you've learned to expect . . . *every* part inspected, *every* wrench pipe tested 100%! Only RIDGID's housing is unconditionally guaranteed, saving you bother and expense. Full-floating hookjaw, adjusting nut spins easily in all sizes, 6" to 60"; replaceable alloy jaws, handy pipe scale on hookjaw, comfort-grip I-beam handle. For most service for your money, buy RIDGID's . . . at your Supply House.

THE RIDGE TOOL COMPANY • ELYRIA, OHIO, U.S.A.

RIDGID
Work-Saver Pipe Tools

If you write maker identify as IEN - 11883

# 98% SAVINGS in Lube Oil with NUGENT GRAVITY FILTERS




NUGENT GRAVITY FILTERS are widely used to supply continuously clean oil in turbine lubrication systems. They filter out dirt, carbon, water and harmful impurities without changing the original characteristics of the oil. They are built in standard capacities from 20 to 2,000 GPH. The only moving element is the oil itself, thus the greatest economy is effected—no power cost—no breakdowns or costly maintenance. Cleaning time averages five minutes per bag.

*Write for bulletin*

**Wm. W. Nugent & Co., Inc.**
418 N. Hermitage Ave. CHICAGO 22, ILLINOIS
Est. 1897

Oil Filters, Oiling and Filtering Systems, Telescopic Oilers, Oiling Devices, Sight Feed Valves, Flow Indicators . . . *Representatives in Principal Cities*

If you write maker identify as IEN - 11884

**FAUVER**

# 'OIL AIRE'

. . . is a fully automatic oiling system for plain bearings, ball and roller bearings, vees, slides, ways, rollers, cams, chains, gears, transmissions . . . it applies constant and uniform oil film to groups of bearings. "OIL AIRE" has no moving parts—it operates solely on compressed air—an advanced development in the field of lubrication. "OIL AIRE" atomizes oil into microscopic particles which are carried in the air-stream and distributed through tubing to the bearings. It circulates "OIL AIRE" within and throughout the bearing cavities . . . The constant flow of "OIL AIRE" cools and protects the bearings against abrasives and dirt while it lubricates. "OIL AIRE" Lubrication Systems can be installed to deliver lubricant at any point.

*Send for complete information, describing briefly your lubrication problem. An "OIL AIRE" System consists of Solenoid Valve, Filter, Water Separator, Regulating Valve, Lubricator, Reservoir, Pressure Switch and Low-Level Indicator.*

FAUVER
J. N. FAUVER CO., INC.

**J. N. FAUVER COMPANY, INC.**
51 WEST HANCOCK, DETROIT 1
OFFICES . . . FLINT, GRAND RAPIDS
BRANCH . . . DAYTON, OHIO

If you write maker identify as IEN - 11886

## MOTOR . . Single phase, 110 volt ac., reversible rotation, for oil burners

**Source: GENERAL ELECTRIC CO.**
**Dept. 6X-201, Schenectady 5, N. Y.**

**Type KH Form G**

Two ratings are ⅛ and ⅙ hp. for this new motor. Rotation can be changed by switching connections on a terminal box on the face of the mounting flange. This flange has the same dimensions as previous motors, of the same rating, built by the company for oil burner drive. The ⅛-hp. design weighs 11 lb. which is 56 per cent less than the previous design.

The motor is thermally protected against overheating and is equipped with a reset button beside the nameplate. Hinged-lid oil cups lead to the bearings. Finish is in black enamel.

If you write maker identify as IEN - 11887

## STATIC ELIMINATOR . . Liquid dries to conductive surface coating

**Source: BOOKER-COOPER INCORPORATED**
**8485-89 Melrose Place, Los Angeles 46, Calif.**

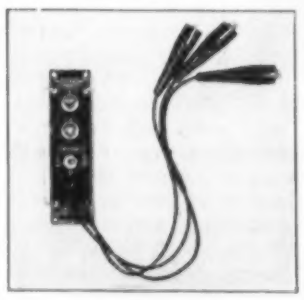
**$2 to $4 per quarter pint**

Staticote trade names new liquid material for application on surfaces to be kept free from static charges. The liquid air dries or bakes to a conductive coating. Type A has good lubricating characteristics in addition to conducting static. Type N-1 is not a lubricant but resists rain erosion and remains serviceable in a temperature range from minus 80 to plus 800 deg. F. Standard resistances range from 0.1 ohm to 30 megohms per square.

If you write maker identify as IEN - 11888

## TESTING . . Phase sequence indicator, 110 to 440 volts, 30 to 1,000 cycles

**Source: UNITED MFG. CO.**
**39-43 Haig St., Hamden, Conn.**



**1½ pounds**

**Three leads**, representing the phases in a three-phase circuit, issue from the housing of this new Model-RVM indicator. The leads are attached to the conductors, in a circuit to be tested, to cause one or the other of two lights in the indicator housing to show 123 or 321 rotation. A toggle switch below the lights is turned to one side for frequency from 30 to 300 cycles and to the other for 300 to 1,000 cycles. The 18-in. leads issue from the housing below the switch and are fitted with alligator clips. Dimensions are 2½ by 2½ by 7 inches.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11889

# Wiring Overloaded?

# CHECK IT!

...WITH THE SPRAGUE

## Adequate Wiring Analyzer

This compact Sprague instrument checks wiring to see if it's adequate for present or contemplated loads.

See the effect of increasing loads on wiring *right at the spot!* Direct reading meter indicates percentage voltage drop on 115 or 230 volt circuits under load *without troublesome calculations.*

Connectors for convenience outlets, equipment, panel boards, etc. are furnished—ideal for industrial, utility, and field use.

*Write for Bulletin PF-600*

**SPRAGUE ELECTRIC COMPANY**
165 Marshall Street, North Adams, Massachusetts

# SPRAGUE

PIONEERS IN ELECTRIC and ELECTRONIC DEVELOPMENT

If you write maker identify as IEN - 11890

## THREE "CHEATS" IN THE WIND

Don't let Dirt, Dust, and grit rob your machinery of its efficiency — *cheat* you out of profitable operation. Blast 'em out of every crack and crevice with a powerful CLEMENTS - CADILLAC blower-suction cleaning tool. Cleans all types of equipment . . . quickly, thoroughly, economically.

SAVE
TIME • MONEY
PREVENT DAMAGE TO MACHINERY WITH THE . . .

Made in 5 models with attachments for every cleaning job.

PORTABLE COMBINATION BLOWER-SUCTION CLEANER

CLEMENTS CADILLAC

**CLEMENTS MFG. CO.**
6620 S. NARRAGANSETT AVE. CHICAGO 38, ILL.

ASK YOUR MILL SUPPLY DEALER OR WRITE US FOR DATA

If you write maker identify as IEN - 11891

# DE WALT is a "Jack-of-all-cuts" for pattern shop use!

More than just a "jack-of-all-cuts," De Walt® is a *master* of every one . . . making each fast and accurately!

You'll find De Walt the most versatile, the most easily adaptable power saw for *any* cutting purpose – whatever it is – especially in a pattern shop.

Wherever they're used, De Walt Power Saws streamline cutting operations . . . increase production . . . decrease costs. Write for illustrated catalog to: De Walt Inc., Dept. IEN-10, Lancaster, Pennsylvania.

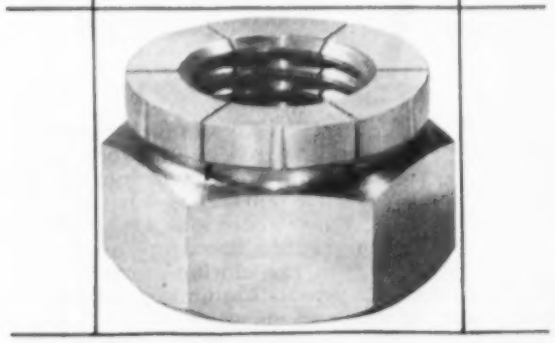
De Walt Inc. Lancaster, Pa.

**DE WALT**
POWER SAWS

Subsidiary of AMERICAN MACHINE & FOUNDRY COMPANY, New York

If you write maker identify as IEN - 11892

# they won't work loose



FLEXLOC Self-Locking Nuts lock and stay tight, no matter how severe the vibration. Yet they can be easily removed and reused repeatedly. They are stop nuts too; they stay put in any position on a bolt when the locking threads are fully engaged. And FLEXLOCS are one piece, all metal—nothing to assemble, come apart, lose or forget. See your local industrial distributor for literature and samples or write SPS, Jenkintown 14, Pa.

*Our Fiftieth Year* : A START FOR THE FUTURE

**FLEXLOC LOCKNUT DIVISION**

**SPS**
JENKINTOWN PENNSYLVANIA

*If you write maker identify as* **IEN - 11893**

**....WHAT'S NEW AT BRISTOL....**

# Meet the world's simplest instrument system!

**TRUE PLUG-IN SERVICE** — results in great savings in installation costs; units can be plugged in or out without stopping process or control.

It's Bristol's new METAGRAPHIC pneumatic transmission instrument system for measuring, indicating, recording and controlling pressure, temperature, vacuum, flow, differential pressure and liquid level.

**Here are the big advantages:**

**SIMPLICITY** — fewer parts, fewer adjustments, and less service required. Ranges can be changed in seconds.

**FLEXIBILITY** — units can be combined like building blocks to make any kind of arrangement.

Get the whole METAGRAPHIC story by writing to The Bristol Company, **107** Bristol Road, Waterbury 20, Conn.

**BRISTOL** *THE DEPENDABLE GUIDEPOST OF INDUSTRY*

**AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS**

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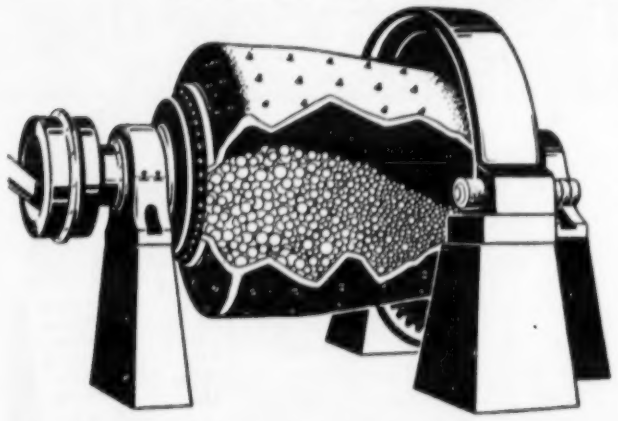
*If you write maker identify as* **IEN - 11894**



Hardinge offers a complete line of mills for every grinding or pulverizing application . . .

CONICAL MILLS
TRICONE MILLS
ROD MILLS
CYLINDRICAL MILLS
TUBE MILLS
BATCH MILLS

*Write for Bulletin AH-440-38*

**HARDINGE**
**COMPANY, INCORPORATED**

YORK, PENNSYLVANIA · 240 Arch St. · Main Office and Works

New York · Toronto · Chicago · Hibbing · Houston · Salt Lake City · San Francisco

---

*If you write maker identify as* **IEN - 11895**

**How Metso Silicate Detergents behave with metals**

An aluminum strip placed in a soda ash solution is immediately attacked but the corrosion stops when a few drops of silicate solution are added.

Metso Detergents protect aluminum, copper, brass, zinc, enamel and glazes.

Ask for a 16 oz. sample of Metso Detergent. Please describe what your cleaning operation is so that we can send you the proper Metso.

Metso Sodium Metasilicate (hydrated and anhydrous)
Metso 99 Sodium Sesquisilicate
Metso 200 Sodium Orthosilicate

*Philadelphia Quartz Company*
1131 Public Ledger Bldg., Philadelphia 6, Pa.

**METSO®** *detergents*

---

*If you write maker identify as* **IEN - 11896**

## LATHE ATTACHMENT . . Tracer control, air operated for contour machining

**Source: MONARCH MACHINE TOOL CO.**
**613-17 N. Oak St., Sidney, Ohio**

**Mounts on standard lathe**

**Type-C Rigid** designates a new air gage tracer superseding the Type-B mechanism previously described IEN-2160-47. The equipment is designed primarily for the company's Model-EE machine. When this machine is equipped with the tracer, it is powered by an electronic drive and provides for maximum diameter change in the work at one setting of the slide to a maximum of 3 inches. Conversion can be made between the tracer control and normal turning, boring and facing operations in a few seconds. Feed range of the hydraulic slide, which is set at 45 deg., permits turning square shoulders.

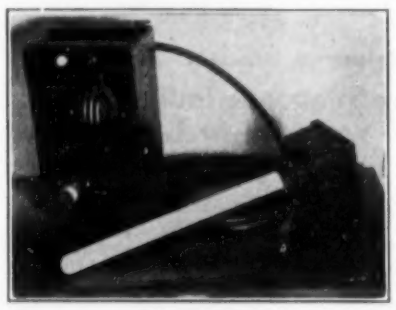
**Flat or round** templates can be used with the tracer. Stylus pressure is 4 to 6 oz. so the template need not be hardened against wear and can be used repeatedly for a long run of work. Air and oil lines, leading to the tracer, connect with a power unit located at the rear of the cabinet base. Air pressure is required at 60 to 65 lb. from a shop source.

---

*If you write maker identify as* **IEN - 11897**

## PROTECTING . . Electric igniter prevents gas explosion in a furnace

**Source: FERGUSON EQUIPMENT CORP.**
**Penn Ave. & 21st St., Pittsburgh 22, Pa.**



**Patent pending**

**Tubular** heating element of this new igniter mounts in a furnace wall at a location where gas is liable to accumulate. It is kept at a temperature above the ignition point of the gas whether it is the fuel gas or a protective atmosphere. Initial gas collection is ignited and burned in small quantities before it can collect in sufficient amount to cause an explosion.

**The element** is a gas tight ceramic tube with an internal metallic electric element. A gasketed flange and fitting are provided to bolt to the furnace wall and permit inspection or replacement. Connection is made through a control unit that indicates audibly and visually if the temperature of the ignition unit falls to a point below the ignition point of the gas.

**Current** is supplied from a shop source through a relay to operate the signal. A circuit breaker is included to actuate the same alarm circuit in the event of drawing excess current. A push button de-energizes the alarm circuit until the unit is up to operating temperature.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

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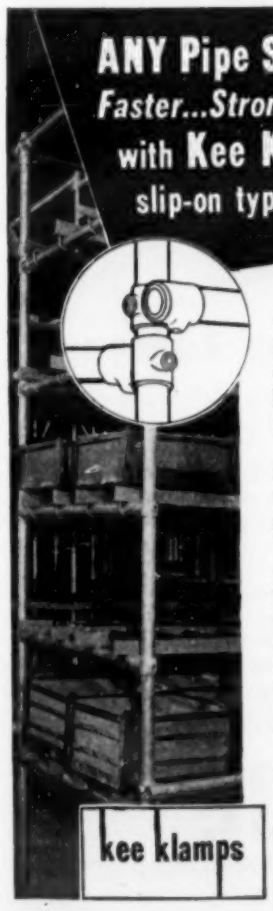
*If you write maker identify as* **IEN - 11898**

**ANY Pipe Structure is Built**
***Faster...Stronger...More Economically***
**with Kee Klamps the original slip-on type fitting**




Racks, shelving, storage bins, scaffolds, railings . . . framework of any type using ⅜" to 2" pipe can be quickly, strongly built and *labor costs cut at least 50%!*

KEE KLAMPS completely eliminate threading or welding pipe and substantially reduce pipe cutting.

44 basic fittings in galvanized or black iron permit joining pipe at 'most any angle. Cup-point hex socket Kee Screws are tightened down on pipe and structure is ready for use! Pipe and fittings are 100% salvageable.

Save time—save money. Write today for name of distributor in your area and illustrated Catalog #41.

Box 99 Hamilton, Ohio

---

*If you write maker identify as* **IEN - 11899**

**the switch is ON to GUARDIAN *Relays***

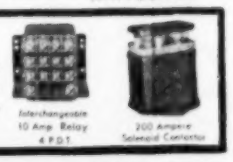
In this modern safety device, a beam of light crosses the point of operation and is reflected into a photo-tube. A broken or modulated beam actuates the tube and a Guardian Relay breaks the circuit to lock the press in the "Up" position until the full light beam is restored. Typical of such a relay is the Guardian Series 5 D.C.

Guardian Relays, Steppers, Contactors and Solenoids specified *at the design stage*, provide more power in less space, make your product instantly responsive, more saleable. Write.

Series 5 D.C. Relay

**AIRCRAFT CONTROLS**

**Complete interchangeability (open types or hermetically sealed) meets new control specifications with no changes in frame drawings. Write for Circular 1R.**



Interchangeable 10 Amp. Relay 4 P.D.T. — 200 Ampere Solenoid Contactor

**GUARDIAN ELECTRIC**
**1620-L W. WALNUT STREET CHICAGO 12, ILLINOIS**

A COMPLETE LINE OF RELAYS SERVING AMERICAN INDUSTRY

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*If you write maker identify as* **IEN - 11900**

**DURING SHIPMENT AND IN STOCK**

# WESTCOAT-AMBER

**PROTECTS METAL PARTS . . COMPLETELY**

- Quick, easy dipping—saves labor.
- Sets in 60 seconds—saves time.
- Can be remelted and re-used.
- Strips easily—slit, peel coating and part is ready for use.
- Saves shipping weight and storage space.

Cut packaging costs with simple, inexpensive hot-dip WESTCOAT-AMBER. Cuts labor to a minimum, yet gives complete metal parts protection against rust and abrasion. Saves weight and space.

AMBER is the companion coating to famous WESTCOAT-CLEAR No. 202, the coating that far exceeds military Specification JAN-C-149, Type II. Method 1B Packaging.

**WESTERN COATING COMPANY**

**Eastern Plant—P. O. Box 227, Elyria, Ohio**
**Western Plant—85 West Union Street, Pasadena 1, California**
***Representatives in principal cities***

**PROTECT WITH WESTCOAT**

***SEND IN COUPON TODAY***

*SEND ME DESCRIPTIVE LITERATURE ON WESTERN COATING PRODUCTS.*

NAME & COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

*If you write maker identify as* IEN - 11902

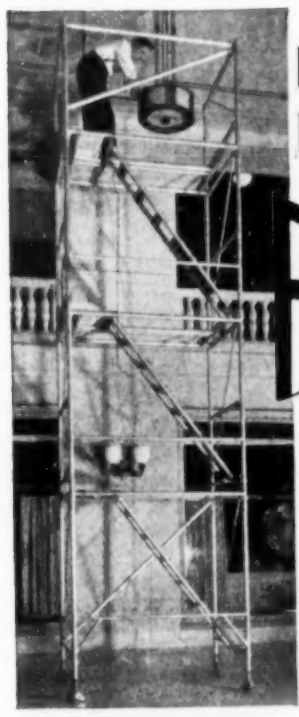
## PRATER ROTARY AIRLOCK FEEDER

FEEDS powdered and granular products into conveying line — quickly and accurately!
STOPS air leakage at the discharge of dust collectors or other pneumatic equipment!
PRE-DETERMINES rate of feeding material into mixers, blenders, hoppers, etc.
RECOMMENDED in the processing of: Ball Clay, China Clay, Diatomaceous Earth, Kaolin, Grains and Feeds, Graphite, Limestone, Whey Powder, Calcium Carbonate, Sulphur, Fullers Earth, Ochre, Volcanic Ash, Bronze Powder, Bauxite, Carbon Black, Salt, Barium Carbonate, Marl, Sugar, Cocoa, Gypsum, Silica, Manganese Sulphate, Phenolic Molding Compound.

*Send for new illustrated bulletin*

**PRATER** PRATER PULVERIZER COMPANY
1536 So. 55th Court • Chicago 50, Ill.

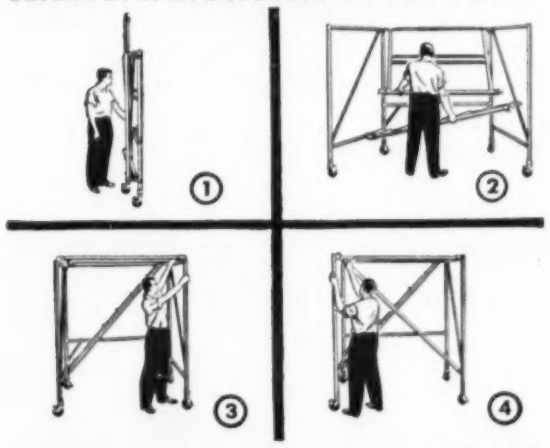
*If you write maker identify as* IEN - 11903



## No Acrobatics! No Flip-Flops! with the FOLD-A-WAY TRADE MARK SCAFFOLD ALUMINUM

*Underwriters' Laboratories approved*

***HERE'S WHY:*** For erection, the end frames of this new aluminum scaffold swing open sideways, as shown below. Maximum swing of any component is 90 degrees, so the erector is always *within* the base area. One man erects the base section in less than a minute.




The FOLD-AWAY Aluminum Scaffold stands freely and will not "fold under" during erection. Superior construction features include coped and *full-welded* joints LOKT-RING adjustable legs with casters that lock at both wheel and swivel.

Write for illustrated Bulletin ASF-1

**Aluminum Sectional Ladder Scaffolds** are extremely mobile. 24" width permits use in restricted areas. 6', 8' and 10' spans; ladders 4'3", 5'8" and 6'1" high, slip together easily for desired height. Underwriters' Laboratories approved. Write for Bulletin AS-2.

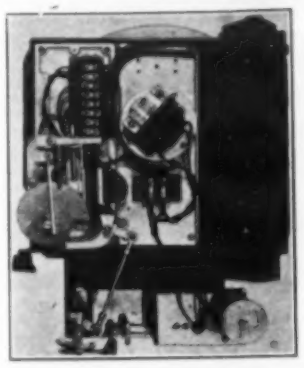
Good Housekeeping *For Greater Safety...Efficiency...Economy*

**THE PATENT SCAFFOLDING CO. INC.**
38-21 12th Street Dept. IEN Long Island City 1, N. Y.
6931 Stanford Ave., Los Angeles 1, Calif.
*Branches In All Principal Cities*

*If you write maker identify as* IEN - 11904

## METER . . Differential instrument indicates, records flow, liquid level

**Source: HAYS CORPORATION**
740-44 E. 8th St., Michigan City 16, Ind.



Bulletin 52-1074-222

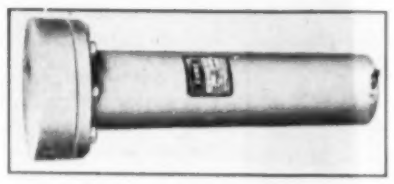
New meter is available in several models to indicate, record, integrate flow of fluids such as gas, steam, water. Records of air flow for boiler operation can be combined with pressure and temperature readings in the one instrument. The record is made on a 12-in. circular chart.

**Actuation** is by a metallic bellows differential pressure transmitter. It is available for a differential range from 20 to 750 in. of water with static operating pressure to 1,500 pounds. Connection between transmitter and receiver is by an electronic circuit employing a differential transformer and an amplifier. The circuit is independent of line voltage variation.

*If you write maker identify as* IEN - 11905

## FILTERING . . Cartridge type unit for liquids and gases at high pressure

**Source: CUNO ENGINEERING CORP.**
41 Wolfson St., Meriden, Conn.



Connections in head

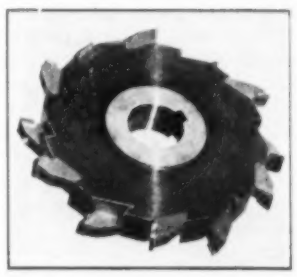
**Series 1H** for liquid, and Series 1HG for gases, have been added to the company's Micro-Klean filter line. Standard units are available for operating pressure to 1,000 pounds. Assemblies for higher pressures can be specified. Construction is in welded steel with the head machined from bar stock. Inlet and outlet connections are ⅜, ½ and ¾-in. pipe.

**Filtration** is guaranteed at 10, 25, 50 and 75 microns. Maximum capacity for liquid is 15 gpm. based on viscosity at 150 ssu., 2-lb. pressure drop and 50-micron filtration. Capacity is 200 cfm., equivalent of free air, for gases at 1,000 lb. on a 2-lb. pressure drop and 25-micron filtration.

*If you write maker identify as* IEN - 11906

## MILLING . . Circular cutter with attached interchangeable blades

**Source: MILLIT INCORPORATED**
33 Flint St., Rochester 8, N. Y.



Note staggered teeth

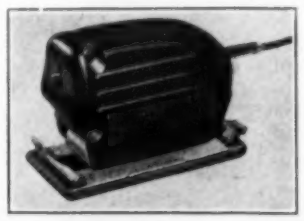
**New mounting,** in staggered arrangement, of the replaceable blades in the company's milling cutter, previously described IEN-8226-53, makes it possible to provide any cutter width to specification. The company's standard "A" blades are used for cutters from ½ to ¾ in. in width. Greater widths are made up by using the standard "B" blade. Both types of blade are carried in stock and can be stocked economically by the user.

**The blades** are faced with carbide, the staggered arrangement minimizing the need for long lengths across the blade face. The cutter is available in diameters from 4 to 14 in. and in specified width over ½ inch. Replaceable blades also are available in high speed steel or cast alloy.

*If you write maker identify as* IEN - 11907

## SANDING . . Portable electric tool reciprocates in straight line action

**Source: WEN PRODUCTS CO.**
5806-10 Northwest Highway, Chicago 31, Ill.



About $14

Pad travel is about ⅛ in. and sanding area measures 2½ by 5⅝ in. in this new reciprocating sanding machine. Operation is on 110-volt ac. with power input at 25 watts. The mechanism is mounted in a plastic housing. Weight is 2½ pounds.

*If you write maker identify as* IEN - 11908

**PLASTIC PIPE . . Flexible polyethylene pipe comes in ½ to 4-in. sizes. Advantages, disadvantages, fittings and list prices in 4-page "Flexible Pipe".** Commercial Plastics Co., 2812 W. North Ave., Dept. IEN, Chicago 47, Ill.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11909

*If you write maker identify as* IEN - 11910

*If you write maker identify as* IEN - 11911

## SEL-LOK SPRING PINS *won't vibrate loose*

Use them as hinge pins, use them to fasten gears, pulleys and sheaves to steel shafting, use them to replace keys, keyways and cotter pins—they won't work loose. For complete information, write STANDARD PRESSED STEEL Co., Jenkintown 14, Pa.

**Sel-lok spring pins** are shock resistant and vibration proof • eliminate expensive reaming operations • replace tapered or grooved pins • easy to insert and remove • reusable • accurate in diameter and length • reduce installation costs • lighter in weight and as strong as a solid cold-rolled steel pin of the same diameter • available in a full range of lengths and diameters

SEL-LOK SPRING PIN DIVISION **SPS**
JENKINTOWN PENNSYLVANIA

*If you write maker identify as* IEN - 11912

# REPAIR CONCRETE WITH INSTANT SETTING PATCH

TEST IT ON TRIAL OFFER

## Tough As Nails! Fast!

Repair broken factory floors without the usual traffic tie-up. Simply shovel INSTANT-USE into hole or rut-tamp smooth—truck over! No waiting! INSTANT-USE bonds tight to old concrete—right up to a feather edge. It's tough. Wears like iron. Won't crack or crumble. Install complete overlay where floors are badly chewed up. Used indoors or out. Immediate shipment.

**MAIL COUPON for TRIAL OFFER and FREE HANDBOOK**

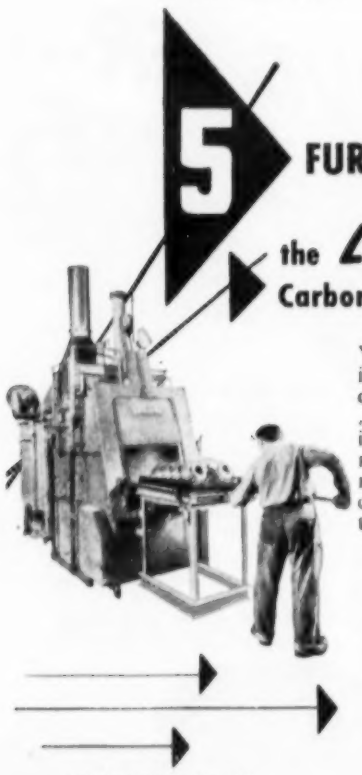
## INSTANT-USE

**FLEXROCK COMPANY** (Offices in principal cities)
**3606-Z Filbert St., Philadelphia 4, Pa.**

Please send me complete INSTANT-USE information details of TRIAL ORDER PLAN and HAND BOOK OF BUILDING MAINTENANCE — no obligation. (Clip and attach Coupon to Co. letterhead).

Name.....
Title.....
Company.....
Address.....

*If you write maker identify as* IEN - 11913



# 5 FURNACES IN ONE

## the LINDBERG Carbonitriding Furnace

Yes, it's many furnaces in one. It's designed not only for carbonitriding . . but also for hardening, carburizing, annealing, and carbon restoration. It's self-contained . . it's easy to maintain!

Heating is by new type, gas-fired, vertical radiant tubes. They weigh only 29 pounds each, can be changed in two minutes, and usually last two or three times longer than old conventional type radiant tubes.

*Ask for Bulletin No. 241*

**LINDBERG FURNACES**

Lindberg Engineering Company • 2481 West Hubbard Street • Chicago 12, Ill.

*If you write maker identify as* IEN - 11914

## Now Ready!

NEW CATALOG ON TUTHILL MODEL CK HIGH PRESSURE PUMPS

**For Designers**

**For Production and Maintenance Men**

Write for this new Tuthill Model CK Catalog No. 103.

It's a helpful guide to selecting the right pump for hydraulic service where the operating pressure does not exceed 400 p.s.i. Included is complete data on mechanically-sealed units and automatic reversing types in capacities from 5 to 200 g.p.m.

***A copy is yours for the asking.***

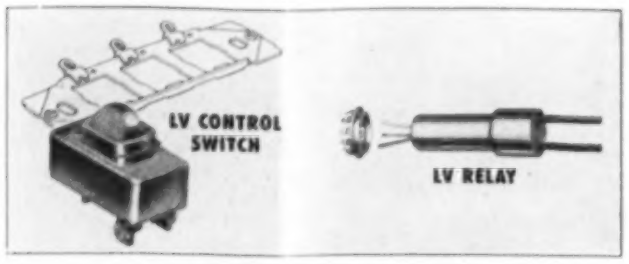
**TUTHILL PUMP COMPANY**
*Dependable Rotary Pumps since 1927*
939 East 95th Street, Chicago 19, Illinois

*Canadian Affiliate:* Ingersoll Machine & Tool Company, Ltd. Ingersoll, Ontario, Canada

*If you write maker identify as* IEN - 11915

## SWITCH . . Low voltage toggle unit actuates relay in standard circuit

**Source: SQUARE D COMPANY**
**6058-62 Rivard St., Detroit 11, Mich.**



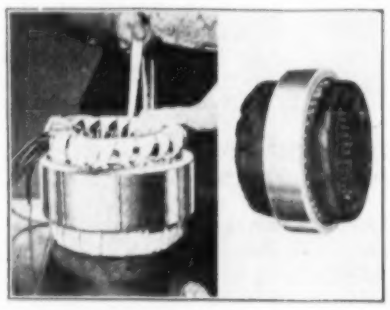

**Combinations unlimited**

Circuits carrying 110 or 220-volt ac. are opened and closed by this new 24-volt switch and its companion relay. The power side of the relay rates 20 amp. on 110 or 277-volt ac., the latter for fluorescent lamp loads. The switch employs a molded plastic housing and mounts on a standard Despard strap. It can be employed with any interchangeable type of plate. Key operated units are available, in place of the toggle design, to prevent unauthorized operation.

*If you write maker identify as* IEN - 11916

## MOTOR . . Standard ac. line available with cemented wound stators

**Source: REULAND ELECTRIC CO.**
**Westminster & W. Mission, Alhambra, Calif.**

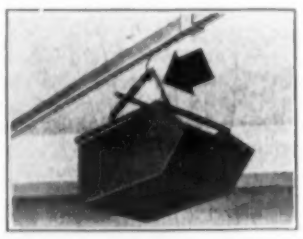


**For heavy duty**

**Armored** designates new stator design that now is standard on the company's line of ac. motors. It is available also in combinations of stator and rotor designed for equipment manufacturers to build into their own frames. In the latter case, NEMA frame sizes range from No. 203 to No. 326 and motor construction is 2, 4, 6 or 8 poles. Stator diameter is 8, 9 and 12 inches. Bore is 5.134 to 8.006 inches.

**Each coil extension** is wrapped and tied down with fabric tape. Then the stator assembly is immersed and soaked in a varnish that dries hard, following a baking interval. The finished unit becomes a solid mass with the windings permanently cemented together.

*If you write maker identify as* IEN - 11917



**Now you can** transport Stackbin boxes on your overhead conveyors as well as stack them in the standard racks or move them on trucks. Stackbin Corporation 1077 Main St., Pawtucket, R. I., has developed a new conveyor hanger. It locks on the box without need for any tools. Then you can hang the box on your conveyor.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

*If you write maker identify as* IEN - 11918

# GOOD NEWS ABOUT WHEELS

**NEWS!** About how 44 centers and only 22 bearings give a choice of 144 sizes to 12" x 4".

**NEWS!** About American Steelite® light-weight champs—weighing up to 9 pounds less than ordinary wheels.

**NEWS!** About American Tread-Lock method—the tread is *Rolled On So It Won't Roll Off!*

**NOW!** Get all this NEWS in the NEW bulletin on American Industrial Wheels, from:

**THE AMERICAN PULLEY COMPANY, Phila., Pa.**

**THE AMERICAN PULLEY COMPANY**
4240 WISSAHICKON AVE., PHILA. 29, PA.

Gentlemen:
I want the NEWS about Wheels—rush me your new American Steelite® Wheel Bulletin.

Name_____
Firm Name_____
Address_____
City_____ Zone_____ State_____

*If you write maker identify as* IEN - 11919

# Turchan

## has what industry needs in the trend to

# Automation

## with TRACER-CONTROLLED machine tools

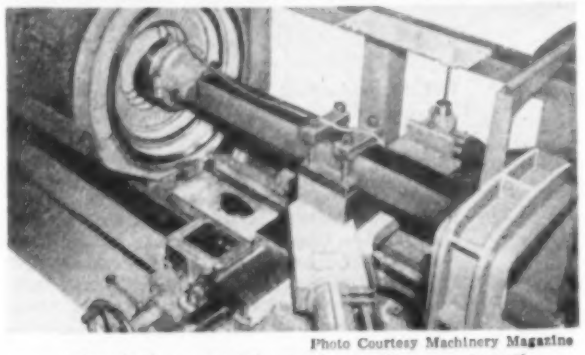


Photo Courtesy Machinery Magazine

- Standard or special machine tools go automatic
- Produce more work, faster, at repetitive accuracy
- Simplify difficult jobs, reduce set-up time
- Eliminate rejects, force down production costs

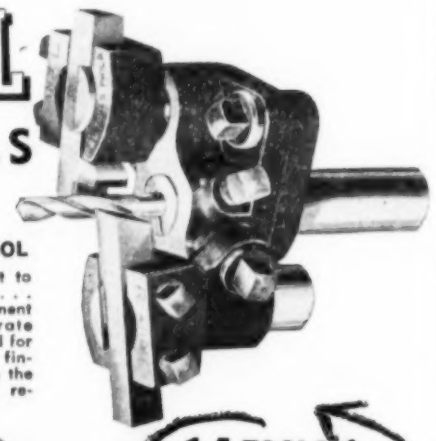
*Write Us for Information*

**TURCHAN FOLLOWER MACHINE CO.**
8259 LIVERNOIS AVENUE • DETROIT 4, MICHIGAN

*If you write maker identify as* IEN - 11920

# MORE PRODUCTION... ..GREATER ACCURACY.. .....LOWER COSTS!

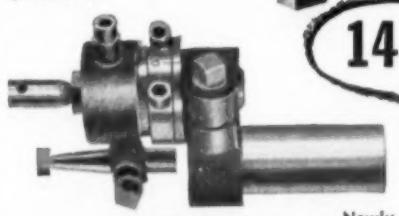
## *With* R AND L TOOLS



**TURNING TOOL**

Changes from right to left in ten seconds . . . Replaces an assortment of fourteen separate tools. It can be used for rough as well as finished cuts, meeting the most difficult job requirements.

**14 TOOLS IN 1**



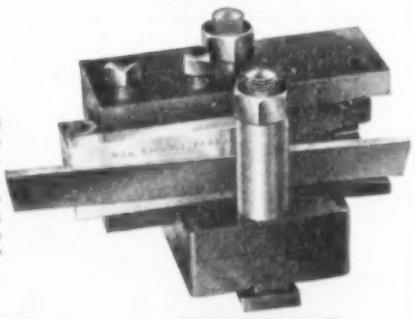
**RECESSING TOOL**

Newly designed . . . available in three standard sizes, (5/8", 3/4", and 1" shank.) Adjustable to operate on both internal and outside diameters . . . with spindle running right or left. Each tool can be adjusted to handle any diameter within the capacity of the machine.

***IT'S NEW!***

**UNIVERSAL TOOL POST**

Precision manufactured to hold square or flat tools, which can be adjusted in all directions. Can be used close to chuck, on front or back cross-slide with spindle running forward or backward.



**CUT OFF BLADE HOLDERS AND CUT OFF BLADES**

Specially designed and flawlessly made to fit R and L UNIVERSAL TOOL POST. Holders can be set to cut off work as close to chuck as desired.

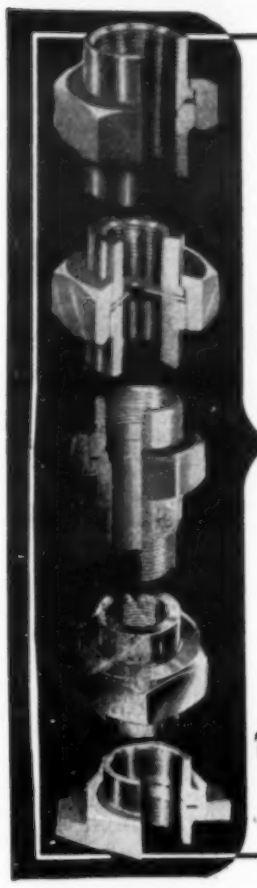
RIGHT R AND L LEFT TOOLS

*Write for Catalog*

TURNING TOOL • TAP AND DIE HOLDER (Releasing or non-releasing—also furnished for Acorn Dies) • CARBIDE OR ROLLER BACKRESTS • UNIVERSAL TOOL POST • TURRET BACKREST HOLDER • CUT-OFF BLADE HOLDER • RECESSING TOOL • REVOLVING STOCK STOP • FLOATING DRILL HOLDER • KNURLING TOOL

**1825 Bristol Street**
**Philadelphia 40, Pa.**

If you write maker identify as IEN - 11922



A TYPE FOR EVERY USE!

Catawissa PERFECT SEAL Unions

for all temperatures for all pressures!

Catawissa Unions are HOT FORGED from solid rectangular steel bars to give sure-fire piping dependability! Exclusive Ball-to-Angle seat design gives A PERFECT SEAL EVEN WITH PIPE NOT IN ALIGNMENT!

There's a Catawissa Union for every use, temperature and pressure . . . Standard and Double Extra Heavy; Orifice; Male & Female; Full Stainless, Full Alloy; Lug Nut. Choice of seats and socket weld or screwed ends.

Write for Catalog

STOCKED BY LEADING INDUSTRIAL DISTRIBUTORS

CATAWISSA VALVE & FITTINGS CO.
50 Mill St. • CATAWISSA, PA.

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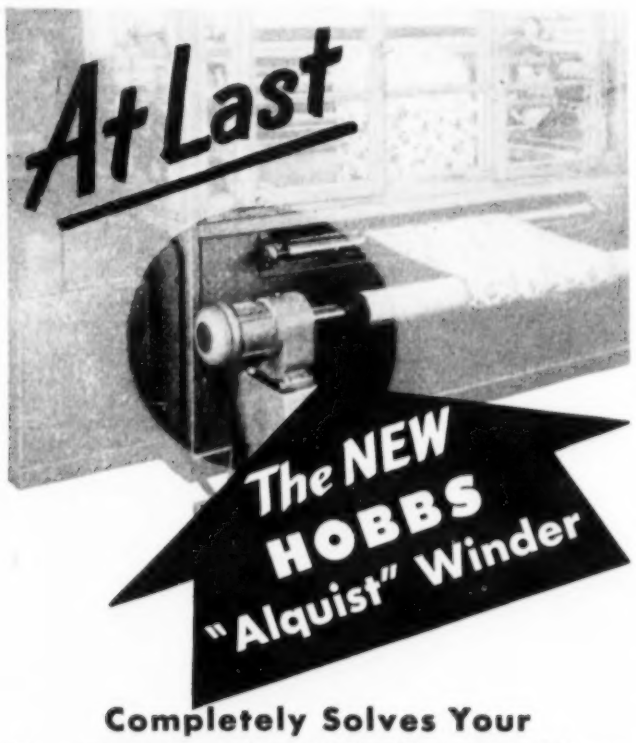


Completely Solves Your Constant Tension Winding Problem

**NOW YOU CAN BE CERTAIN** of constant tension from start to finish in winding textiles, rubber, foil, cable, wire, plastics, paper—almost any material, light or heavy. Here in the new, revolutionary Hobbs "Alquist" Winder is your opportunity to eliminate stretching, breaking, bulging—to step-up production and obtain a higher quality of wound material than has ever been possible before.

**NO OTHER WINDING DEVICE** can match the "Alquist" for simplicity, efficiency and flexibility. This compact unit consists of a special electric motor, flange mounted to a gear reducer. It is entirely independent of the main machine drive. Only a hook-up to your present power outlet is required. Control is electrical. The desired tension is maintained at all times simply by setting a knob at the start of the winding operation. As the diameter of the roll increases, the motor of the winder slows down in direct proportion to compensate for the increased torque required. It is *constantly and automatically sensitive* to the material being wound. Not only does it save your materials, but the "Alquist" Winder cuts down your operating costs. Actual power utilization is as high as 80%—approximately four times greater than other types of winders.

**OUTSTANDING PERFORMANCE HAS BEEN PROVED** in European plants. Introduced recently in America by Hobbs, the "Alquist" Winder is available for left or right hand winding and in a range of models to handle materials of any weight. Cost is competitive.

**FIND OUT FOR YOURSELF** just why the Hobbs "Alquist" Winder can make such a big difference in the quality and quantity of your production. Mail coupon today for free bulletin giving complete information. No obligation.

HOBBS MANUFACTURING CO.
EST. 1882 40 SALISBURY ST., WORCESTER 5, MASS.

MAIL COUPON TODAY FOR FREE INFORMATION

HOBBS MANUFACTURING CO.
40 Salisbury St., Worcester 5, Mass.

Please send complete information on the new Hobbs "Alquist" Winder.

Name ..... Title .....
Company .....
Type of material wound .....
Street .....
City ..... Zone ..... State .....

If you write maker identify as IEN - 11925

## HANDLING . . Electric manipulator keeps operator out of dangerous zones

Source: GENERAL MILLS INC.
2001-5 E. Hennepin Ave., Minneapolis 13, Minn.

Bulletin 102

Work can be gripped, picked up, hinged, moved to new locations and positioned there, all by remote control, with this new electric manipulator. The unit is shown in one of several designs that the company is prepared to supply to order. Additional special designs can be assembled for given operations.

**Shoulder rotation** and swing, elbow swing, wrist rotation, hand closing and opening, in addition to vertical, lateral and longitudinal travel, depending upon the manipulator mounting, are all controlled at two multiple acting levers in a remote wheel mounted control assembly. The various movements operate at speeds from less than 1 to 2½ rpm. for the swing and rotating actions. The hand closes at 15 ipm. through a 5-in. range. Vertical lift, in the unit illustrated with all of the members of the arm vertical, is to 750 pounds.

**Operation** is on 110-volt 60-cycle ac. The arm without the overhead mounting weighs 135 pounds. The control assembly weighs 200 pounds.

If you write maker identify as IEN - 11926

## TRUCK . . Side loading fork unit lifts, carries long loads, to 15 ton

Source: BAKER RAULANG COMPANY
1248-52 W. 80th St., Cleveland 2, Ohio

Works in 12 ft. aisle

**The uprights,** carrying the load forks on this new Traveloader, are mounted in cross ways on the truck body. They are moved by power so the forks ride out horizontally to engage a long load lying beside the truck. The operator also moves the forks up and down to lift and lower a load from or to the ground or the truck body depending upon the application.

**The truck** will carry the load on its body at speeds to 30 mph. Hydraulic outriggers are positioned or retracted by the operator when he picks up or deposits a capacity load.

**Mounting** is on dual wheels fitted with pneumatic ties at both ends of the truck. Available attachments include crane arms, rams and master pallets to handle multiple pallet loads. Lift height is to 12 feet. Size is 300 by 108 by 120 inches.

*All Makers of These And All Other Products Are Listed In THOMAS' REGISTER . . Descriptions . . Ratings . . See Page 50*

If you write maker identify as IEN - 11927

A PAID NEWS ADVERTISEMENT BY MATHEWSON MACHINE WORKS

## NEW ADJUSTABLE DRILL JIG eliminates layout; cuts drilling time

Used for drilling holes through round stock and hex stock from ¼" to 2" and cap screws from ¼" to 1¼", the new Mathewson Adjustable Drill Jig eliminates layout and can cut drilling time on small lots to a fraction. And it eliminates the costs of special jigs for larger quantities. Holes for cotter pins, set screws, drive pins for bayonet joints, oil holes in tubular sections, and wiring holes in cap screws, are typical of the operation that can be done more economically with this jig. Hole diameters range from .052" to .531", using your A.S.A. standard slip bushings. The hardened V block has two 60-degree V's for centering round or hexagonal stock, one for ¼" to 21/32" diameter, one for 21/32" to 2" diameter. Adjustable stop for locating work longitudinally for drilling any distance from end, may be used on either side. Adjustable bushing carries hold slip bushings and clamp work securely, jig highly successful in permitting use of inexperienced drill operators. For circular write to: **Mathewson Machine Works**, 26 Hancock Street, Quincy, Mass.

If you write maker identify as IEN - 11928

NEW! VALVAIR SPEED KING SOLENOID PILOT OPERATED CONTROL VALVES

The New Valvair Speed King line is complete — 3-way, 4-way, 4-way-5-port (2-pressure), foot-mounted or sub-base manifold mounted; pipe sizes — ¼", ⅜", ½", ¾", 1". A precedent-breaker in size, weight, speed and endurance. *Get all the facts!*

VALVAIR CORPORATION *Affiliate: Sinclair-Collins Valve Company* 949 Beardsley Avenue, Akron 11, Ohio
*REPRESENTATIVES IN PRINCIPAL CITIES*

Rely Upon Valvair DIVERSATILITY

ASK FOR BULLETIN "Q-10".

If you write maker identify as IEN - 11929

Here, for the first time, is a valve built for heavy duty service, yet incorporating the inherent simplicity and immediate response of the solenoid principle. Operates dependably under differential pressures to 150 lbs., temperatures to 400°—without use of auxiliary pistons or pilot valves. Finding new uses every day, handling steam, liquid, air, gases, and particularly heavy viscous liquids.

*Available in sizes ½" to 3", with stainless steel valve and seat or Jenkins disc construction; for normally closed or normally open service. Find out where you can use it; write for Bulletin "V"*

The Johnson Corporation

846 Wood Street • Three Rivers, Michigan

If you write maker identify as IEN - 11930

SUMMER'S BLISTERING HEAT . . . THEN

SUDDEN ROOF LEAKS!

NOW IS THE TIME TO PROTECT YOUR ROOF WITH

STONHARD ROOF RESURFACERS

*Before Winter Sets In!*

STONHARD PLASTIC ROOF RESURFACER seals around skylights, gutters and parapets, just trowel it on. STONHARD LIQUID ROOF RESURFACER rejuvenates dried out areas, restores elasticity and provides a one-piece covering that resists the elements. There's no heating, no mixing, STONHARD ROOF RESURFACERS are applied right from the container—to any type roof. Write today for our free ROOF RESURFACER booklet. It can save you money.

STONHARD COMPANY
*Building Maintenance Materials Since 1922*
102 Stonhard Bldg., 1306 Spring Garden Street, Phila. 23, Pa.

Yes, I want details on STONHARD ROOF SURFACERS 102/10/53
Name .....
Company ..... Title .....
Address .....
City ..... Zone ..... State .....

If you write maker identify as IEN - 11931

# stop coasting, *add output*

with STEARNS MAGNETIC DISC BRAKES

Stopping motors quickly is a key factor in cutting waste time — stepping up production. Here are a few important reasons why America's leading motor makers and design engineers specify Stearns magnetic disc brakes.

**Wide size range** — for 1/6 to 100-hp. motors, AC or DC. 1.5 to 7500 lb. ft. torque range.

**Three housing types** — Explosion proof, water and dust-tight, standard. Vertical or horizontal, motor or floor mounting.

**Easy adjustment** — Single nut for torque, single stud for lining wear. Long-wearing lining easily replaced.

**Fast stop** — Positive spring action on pressure plates.

**Quick release** — Instantaneous magnetic pull — eliminates drag.

All major motor manufacturers either supply Stearns brakes exclusively or furnish on request. Write for full details. 1057

MAGNETIC EQUIPMENT FOR ALL INDUSTRY

STEARNS MAGNETS

STEARNS MAGNETIC, INC.

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If you write maker identify as IEN - 11932

# SAVE TIME & MONEY ON INSPECTIONS

*Fine, Imported Instrument Available at 50% Saving*

STEREO MICROSCOPE

FOR INDUSTRIAL OR HOBBY USE

WIDE, 3 DIMENSIONAL FIELD

*Excellent Depth for Working Under Magnification!*

$160 Value *Only* $85.00 Pstpd.

Now, for the first time — a fine, imported Binocular Microscope at a substantial saving. Will pay for itself over and over in speeding, improving quality control. EDSCORP Stereo Microscope can be used for inspections, examinations, counting, checking, etc. Fixed 3 power objective with 3 pairs of matched eyepieces to give you powers of 15X, 30X, 45X. Rack and pinion focusing. Interpupillary adjustment. Instrument is removable from base for mounting on equipment or bench. Working distance — 2¾". Adjustable for extra height. Fine hardwood case included. Recommended for lab, shop, factory or home use. We guarantee complete satisfaction or your money back.

**WE'LL SHIP ON 10-DAY TRIAL OFFER** *Attach Coupon to Company Letterhead*

Edmund Scientific Corp., 309 E. Gloucester Pike, Barrington, N. J.
Please Ship EDSCORP Microscope Stock No. 70,011-AS on 10-day Trial Offer
☐ Our check is enclosed in amount $85.00. ☐ Bill us on open account.
☐ Send Additional Stereo Microscope Details.
Name .....
Company .....
Address .....
City ..... Zone ..... State .....

If you write maker identify as IEN - 11933

# FINISHING PROBLEM?

Switch to Black & Decker POWER!

**B & D SANDERS**

3 models, 7" and 9" disc diam., standard and heavy-duty types

**B & D ELECTRIC SANDERS** drive abrasive discs, saucer grinding wheels, "Whirlwind" wire cup brushes, planing and gouging heads—to speed up sanding metal and wood; grinding down welds and casting ridges; cleaning castings, tanks, vats, sheer metal and soldered joints; surfacing timbers. B&D-built universal motors for dependable service. Match-lapped, spline-mounted spiral bevel gears for smooth, quiet flow of power. Perfect balance for easier handling. See your nearby B & D Distributor for a demonstration. Write for free catalog to: THE BLACK & DECKER MFG. CO., 608 Pennsylvania Ave., Towson 4, Md.

LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker PORTABLE ELECTRIC TOOLS

# "I WISH I HAD"

This column concentrates upon reader requests for information on sources of supply for products or services or technical advice which we ourselves cannot supply, advises you of new patent-protected products for your possible manufacture, and available surplus of specialized products.

It is published to invite your suggestions and comments, which are forwarded immediately to the originator, just as we will be happy to publish similar problems for you.

**CLEANING . .** "I wish we had a source of supply for immediate delivery of a Model VC-325 Size C Detrex continuous degreaser in good operating condition. We are located in Edgerton, Ohio." **IEN W-77**

**ENGINEER . .** "I wish I had a contact with a manufacturer who desires the services of an industrial safety engineer with a background of 10 years of plant experience. I am located at present in Massachusetts." **IEN W-78**

**SURPLUS . .** "I wish we had a buyer for about 20,000 pieces of new Masonite in strips measuring 26 by 5 by $\frac{3}{16}$ inch. The material is in storage in Newport, Ky." **IEN W-79**

**SURPLUS . .** "I wish we had a buyer for two 1,500 gpm. reciprocating steam fire pumps, 20 by 12 by 16 in. for full speed operation at 60 rpm. Both pumps are in first class condition in storage in Cohoes, N. Y." **IEN W-80**

**SURPLUS . .** "I wish we had a buyer for a Gehnrich gas-fired recirculating truck oven with a work chamber measuring 72 by 84 by 78 inches. Equipment includes 4 trucks, each carrying 4 trays, flame safety controls and thermostat. Maximum rated temperature is 500 deg. F. The 2-year old equipment is in excellent condition in storage in Brooklyn." **IEN W-81**

**SURPLUS . .** "I wish we had a buyer for about 700 lb. of new ⅝ in. round Type 303 stainless steel in 12 ft. lengths. The material is in stock in Van Buren, Ind." **IEN W-82**

**SURPLUS . .** "I wish we had a buyer for a Vari-Typer for which we have no further use. It is in our Bureau of Industrial Research in Northfield, Vermont." **IEN W-83**

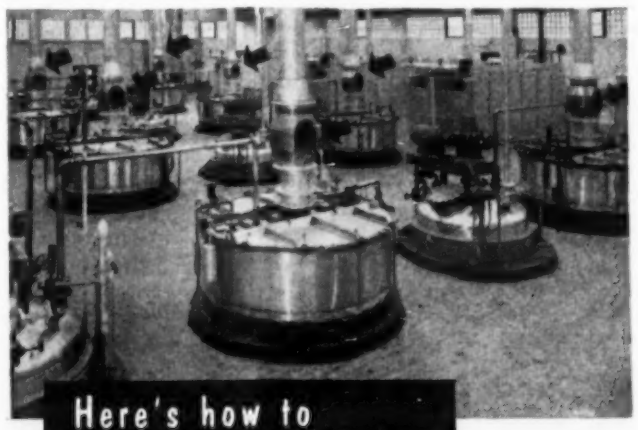
**SURPLUS . .** "I wish we had a buyer for 22 lengths of 2 in. Revere Grade "A" red brass pipe. It is in storage in Kendallville, Ind." **IEN W-84**

## PLEASE WATCH FOR YOURS

*Certain copies of this publication for the next few months will carry a post card on the front page. It is intended for your use to make sure you still want to remain on our mailing list. Please watch for the one with your name on it.*

*OK or correct your name and address as they appear on the card. Please also check the questions asked. They are simple, self-explanatory, essential to our circulation audit.*

If you write maker identify as IEN - 11934



Here's how to EXHAUST FUMES

Bifurcator is a motor-driven fan in a split housing, for exhausting hot, corrosive, flammable or explosive gases. Motor is in isolated chamber around which exhaust fumes are by-passed, so motor stays clean, cool and accessible. Bifurcator Fans install just like a section of duct, at any angle. Built with fan wheels 12" through 48" in diameter, with capacities to 45,000 CFM. Ask your DeBothezat representative or write for illustrated catalog.

DeBothezat Fans

Division of AMERICAN MACHINE AND METALS, INC.
East Moline, Illinois

If you write maker identify as IEN - 11935

# NEW "Lifetime" Dial Thermometers

You're *always* sure of accurate temperature readings with this new Foxboro "Lifetime" Dial Thermometer. Welded "one-piece" bulb and connecting capillary tubing of 316 Stainless Steel prevent corrosion from liquids, fumes or vapors. Needs no protective tubing. Tightly sealed 5" aluminum alloy case. Available in standard ranges to 1000°F. Easy-to-read scale 12" long. Write for details. **The Foxboro Company, 423 Neponset Ave., Foxboro, Mass., U.S.A.**

FOXBORO Reg. U.S. Pat. Off. DIAL THERMOMETERS

If you write maker identify as IEN - 11936

Don't scrap expensive tools and dies—now you can save money . . . maintain and boost your production through salvage welding! Brand new 64-page book, crammed full of ideas, tells you how to save thousands of dollars through simple, yet effective tool and die salvage procedures. Over 100 how-to-do-it photographs and easy-to-follow diagrams graphically show you new materials and new techniques that can save you time, labor and materials. Every page has one or more money-saving ideas you can use right in your own plant, factory, or shop.

SEE HOW OTHERS SAVE—AND HOW YOU CAN, TOO!

**SEE** *. . . how easily YOU can save countless hours of equipment "downtime" due to delayed delivery of replacement tools and dies . . . how to save critical materials by rebuilding all types of worn dies . . . how to revamp punches and dies by welding, saving cost of redesign . . . how to weld broken tools to operate "good as new" instead of scrapping . . . how to avoid complete retooling formerly caused by minor design changes . . . how welding builds up dies out of several components, eliminates high machining costs, and permits use of cheaper base materials for non-working surfaces.*

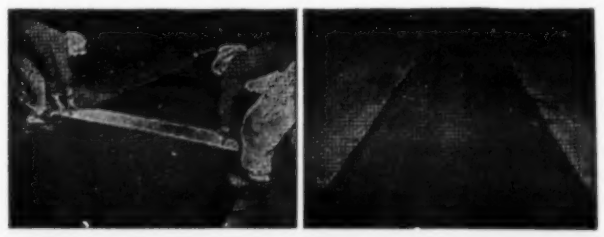
*Send For Your FREE Copy Today*

EUTECTIC WELDING ALLOYS CORPORATION
172nd Street & Northern Blvd.—Flushing 58, N. Y., N. Y.

If you write maker identify as IEN - 11937

# NEW FLOORS IN 24 HOURS

*FLOORS LAID TODAY • READY FOR USE IN 24 HOURS*



Install "PERMAFLEX" HARD MASTIC any thickness required over Old Rough Concrete or Wood Floors, Aisles, Platforms, Walks or Drives. INTERIOR OR EXTERIOR. Edges are splayed to a feather edge.

**3000 LBS. PRESSURE PER SQ. IN. WILL NOT RUT**

*No Dust • No Chipping • No Delays to Production*

**We Contract for Complete Installations**

*Prices Are Amazingly Low*

Over 2,000 SATISFIED USERS INCLUDE: General Electric — Westinghouse — U. S. Steel — General Motors — Chrysler — Atlantic Steel — A. O. Smith — Leading R. R. and Warehouse Companies

**PERMAFLEX FLOORS ARE**

• Heavy Duty • Slipproof • Fire Resistant • Warm & Quiet
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INSTALL COMPLETE 15c per square foot

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